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Answering the Call for Scholarship: The *Journal of International Crisis and Risk Communication Research*

Matthew W. Seeger 

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In the foundational work *Normal Accidents*, Charles Perrow (1984) observed that advances and globalization of technology were creating a form of “interactive complexity” where seemingly minor failures could escalate and cascade throughout a system, leading to devastating accidents. Furthermore, as technology became more ubiquitous and complex, such accidents become normal in the sense that they are programmed into systems. Tight coupling; lack of buffers; and interactive, unanticipated nonlinear interactions may create systemic collapse. Simply put, crises of significant magnitude are, as Perrow predicted, increasing in frequency and intensity (Helsloot, Boin, Jacobs, & Comfort, 2012). The magnitude, complexity, and frequency of such events challenge the existing conceptualization of crisis management in general and crisis communication specifically (Topper & Lagadec, 2013). Communication is essential to understanding and managing crises in two general ways. First, communication is necessary for meaning making around what are very uncertain and equivocal events. Second, communication is instrumental as part of the crisis and risk management functions (Sellnow & Seeger, 2013). This includes activities such as environmental scanning for risks, creating an effective response, resolving crises, and learning the lessons from these events.

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Coordinated responses, cooperation, evacuations and warning, risk education, processes of crisis planning and crisis decision-making, memorializing and grieving, resolving, and repairing all require communication.

This journal, more than 15 years in the making, grew out of a recognition that crisis and risk communication are growing research topics with important applied, global, and interdisciplinary dimensions. This diverse body of research follows a variety of methodological and epistemic traditions, and although other traditional outlets for communication scholarship have been open to publishing crisis and risk research, the volume of work warrants a dedicated journal. Topical conferences, such as the International Crisis and Risk Communication Conference and the biannual European Communication Research and Education Association Crisis Communication Conference, as well as handbooks, including the *Handbook of Crisis Communication* (Coombs & Holladay, 2011), the *Handbook of Crisis and Risk Communication* (Heath & O'Hair, 2010), the *Handbook of International Crisis Communication* (Schwarz, Seeger, & Auer, 2016), and research and theory texts, such as *Theorizing Crisis Communication* (Sellnow & Seeger, 2013), are further evidence that a focused academic journal is needed. These outlets also demonstrate that the field is maturing and relevant.

Crisis and risk communication also have important interdisciplinary connections, and we believe that grounding this journal in the communication field, with its tradition of eclectic approaches to inquiry, allows investigators to make important contributions across related fields. Psychology has contributed significantly to the literature on risk perception, while economics has pioneered understanding of risk assessment, and both include work in risk communication. *Risk Analysis* is one primary outlet for this work. Sociology and, to a lesser degree, anthropology have focused on issues surrounding warnings, evacuation, and coordination, and much of this work appears in the *Journal of Contingencies and Crisis Management*. Communication researchers seeking outlets for their work have turned to more general journals, such as the *Journal of Applied Communication Research*, *Management Communication Quarterly*, or one of many journals in public relations.

The *Journal of International Crisis and Risk Communication Research*

(*JICRCR*) also acknowledges the close intersection of crisis and risk communication. Several important efforts have been made to connect what have historically been separate domains of research inquiry and practice (Heath & O'Hair, 2010; Reynolds & Seeger, 2005). Risk and crisis communication can be understood as two interconnected processes in a larger system of managing, responding to, and understanding an emerging threat. They may also be understood as counterpoints such that crisis is the manifestation of a risk and the failure to manage it successfully. Heath and O'Hair (2010) described crisis and risk as fundamentally linked. *JICRCR*'s attention to both phenomena creates opportunities to explore those linkages.

The inaugural issue of *JICRCR* reflects the range and reach of crisis and risk communication research. This includes qualitative and quantitative approaches to crises that are functions of organizational decisions, natural disasters, and emerging diseases and crises that are associated with a wide range of cultures and locations. In addition, the journal is inclusive of local, state, federal, and international perspectives and of work from the research, policy, and practitioner communities.

Climate change, emerging diseases, population migration and dislocation, breakdowns in civil society, aging infrastructure, rising expectations, limitations and competition for critical resources—food, water, energy—technological complexity and collapses, and many other forms of natural, human-caused, and interactive events will challenge and, in many cases, overwhelm our communication processes and capacities. Systemic research is one important element in understanding, managing, responding to, and learning from these events.

Matthew W. Seeger, PhD, is a faculty member and administrator at Wayne State University. His research concerns crisis and risk communication; health promotion and communication; crisis response and agency coordination; the role of media, including new media; crisis and communication ethics; failure of complex systems; and postcrisis renewal.

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Crisis and Image Repair at United Airlines: Fly the Unfriendly Skies

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ABSTRACT

In April 2017, United Airlines had a passenger removed from one of its airplanes. Video of the bleeding man being dragged off through the aisle went viral the next day. United's initial response attempted to downplay this offensive act (relying primarily on differentiation and mortification, but not really apologizing for this offensive act). This stance provoked outrage and ridicule. This study applies image repair theory (Benoit, 2015) to the discourse in this case study. United's CEO, Oscar Munoz, was forced to offer a "do-over," stressing mortification and corrective action that were actually directed to the offensive act. United finally arrived at the proper response, but it came too late to realize its full potential. This essay argues that corrective action can be an important strategy in crisis communication theory; it also explains that social media have changed the crisis situation (with nearly instant and widespread criticism) and compressed the time in which those accused of wrongdoing can respond.

KEYWORDS: Image repair; case study; United Airlines; social media; corrective action

On Sunday, April 9, 2017, United Airlines sought to substitute four flight crew members for passengers already seated on United flight 3411 traveling from Chicago, Illinois, to Louisville, Kentucky. Three passengers accepted travel vouchers, but United stopped short of offering the maximum amount possible, and no one else volunteered to leave the airplane. Chicago security personnel then physically removed a passenger, David Dao, from the flight. On Monday morning, Audra Bridges, a passenger on the flight, "posted a video of the incident on Facebook, which has been shared more than 49,000 times and viewed 3.8 million times" (Marotti & Zumbach, 2017). The video of the incident showed a bloody, screaming man being dragged through the aisle and

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off the plane (Singh, 2017). Dao's injuries included a "concussion, a broken nose, and two lost teeth" (McCann, 2017).

United Airlines CEO Oscar Munoz initially tried to downplay the situation; rather than apologizing for his company's outrageous behavior toward Dao, he suggested that Dao's belligerent behavior caused the incident. Notably, Munoz apologized to the *other* passengers on the flight, but not to Dao. United's initial response was spread via social media, making things worse for United. A Harris Poll (2017) revealed that the percentage of consumers who thought United Airlines had a "bad" or "very bad" reputation soared from 7% in 2016 to 42% after the incident. A survey from Public Policy Polls found that "40% of those surveyed believe United is the worst airline in the country" (Gonzales-Ramirez, 2017). Carol Gstalder, senior vice president at the Harris Poll, noted that "United's six-fold increase in negative corporate reputation sentiment shows us once again how quickly and severely a company's corporate reputation can be damaged" (Harris Poll, 2017). On Tuesday, shares of United stock dropped \$1.4 billion (Shen, 2017). Undeniably, United Airlines faced a serious crisis. This article analyzes United's attempt to repair its image in this debacle. First, I discuss corporate crisis communication in general and research applying image repair theory to corporate scandals. Then, I use image repair theory to analyze the company's statements in this case. Finally, I discuss implications of the analysis for theory and practice.

Literature Review

Corporate Crisis Communication

Scholars have brought a number of perspectives to bear on the topic of crisis communication. Three key works focused on crises in corporate communication: Hearit (2006) articulated the idea of *crisis communication by apology*, and Coombs (2012, 2013) developed *situational crisis communication theory*. The *rhetoric of renewal*, explicated by Seeger, Sellnow, and colleagues (e.g., Seeger & Griffin-Padgett, 2010; Seeger, Ulmer, Novak, & Sellnow, 2005; Sellnow & Seeger, 2013; Ulmer, Seeger, & Sellnow, 2007), is another important approach to crisis communication. Because a person's or organization's reputation is so important,

crises usually prompt messages to control or eliminate damage. This analysis depends on *image repair theory*, so that literature will be examined more closely.

Image Repair Theory

Benoit (1995a, 1997, 2015) created image repair theory by drawing on rhetorical theory (Burke, 1970, 1973; Ware & Linkugel, 1973; Scott & Lyman, 1968). This approach to crisis communication discourse begins with two key assumptions: (a) Communication is a goal-oriented activity and (b) a fundamental goal of communication is maintaining a positive reputation. Image repair discourse is a response to actual or anticipated threats to face. Such threats consist of two elements: (a) an offensive act that is (b) attributed to the target (see Pomerantz's, 1978, analysis of complaints or Benoit, 2017; Benoit & Glantz, 2017). Image repair theory identifies 5 general strategies and a total of 14 strategies (see Benoit, 2015; see Table 1).

The United crisis, a video of a passenger being dragged off an airplane followed by an inept initial response, cries out for corrective action. This strategy has been used frequently in image repair, with mixed results. This section reviews uses of corrective action that were relatively successful and other instances of this strategy that were less effective.

Following the first episode of Tylenol poisoning, Johnson and Johnson used denial, bolstering, and corrective action (tamper-resistant packaging). This image repair effort was remarkably effective. President Reagan initially attempted to deny knowledge of the Iran–Contra affair. He repeatedly stressed good intentions and tried to minimize perceived harms. Ultimately, however, evidence emerged that forced him to reverse his position, admitting responsibility and taking corrective action to prevent recurrence of similar problems. Only then did his popularity reverse its downward spiral.

AT&T lost its long-distance telephone service in 1991 because of a power outage. At that time, air traffic control relied on land lines to direct airplane movement, so, in addition to the disruption of long distance, air travel was degraded. AT&T published a full-page newspaper advertisement that effectively used mortification, corrective action, and

TABLE 1 *Typology of Image Repair Strategies*

Strategy	Definition	Example
Denial		
<i>Simple denial</i>	did not perform act; act is not harmful	Tylenol did not poison capsules
<i>Shift blame</i>	another committed the offense	madman poisoned capsules
Evade responsibility		
<i>Provocation</i>	offensive act just a response to an earlier offense	firm left state because of new taxes
<i>Defeasibility</i>	lack of information or ability	executive not informed of changed meeting time
<i>Accident</i>	mishap	tree fell on tracks, causing train wreck
<i>Good intentions</i>	meant well	company believed changes would help consumers
Reduce offensiveness		
<i>Bolstering</i>	stress defender's good traits or acts	Exxon claimed "swift and competent oil spill cleanup"
<i>Minimization</i>	offense less serious than it appears	few harmed by water pollution
<i>Differentiation</i>	act less offensive than other, similar acts	Sears repairs were preventative maintenance, not fraud
<i>Transcendence</i>	act justified by more important values	research uses animals to help create drugs for people
<i>Attack accuser</i>	reduce credibility of accuser; suggest victim deserved offense; shift audience attention from act	Pepsi owns restaurants and competes for your customers
Corrective action	fix problem or prevent recurrence	AT&T promises to spend billions to improve service
Mortification	apologize	AT&T apologized for service interruption

Note. See Benoit (1995a, 1997, 2015).

bolstering to repair the company's image (Benoit & Brinson, 1994). This strategy was employed successfully in this case.

In the early 1990s, Dow Corning was criticized for the alleged dangers of its breast implants. Its defense began with denial. Later, it used a mild form of mortification (i.e., saying it did not express its concerns for women adequately) without admitting to the dangers of its implants, and finally, Dow used corrective action when it ceased production of the implants (Brinson & Benoit, 1996). The corrective action muted the criticism, although arguably, it should have come sooner.

In 1996, a secret tape recording of executives at Texaco was leaked to the public. African American employees were described in the conversation as "black jelly beans" who were "glued to the bottom of the jar" (Brinson & Benoit, 1999, p. 484). These revelations prompted outrage, so the company developed several messages utilizing bolstering, corrective action, mortification, and shifting blame. The most interesting strategy in its successful defense was shifting the blame to "bad apples" in the company, who were punished.

British Petroleum (BP) put out a number of newspaper and television ads about the Gulf of Mexico oil spill (Benoit, 2015). The company used mortification, bolstering, and corrective action. Some of the spokespeople the company used were local residents. A novel element of BP's image repair effort was that it not only promised corrective action but also gave progress reports.

Other instances of corrective action were less successful. Exxon's response to the *Valdez* oil spill shifted the blame for the accident to Captain Hazelwood and for the delay in the cleanup to slow authorization from the state of Alaska and the U.S. Coast Guard. It attempted to minimize the size of the problem, bolstered its image as a concerned company, and promised corrective action to alleviate any damage. However, the state of Alaska and the U.S. Coast Guard were poor choices for targets for blame. Exxon's attempts to minimize the extent of the problem were graphically denied by television and newspaper coverage. Similarly, description of a slow and apparently inept cleanup undermined both its attempts to bolster its image and the credibility of its promised corrective action. Thus Exxon's image restoration campaign was relatively ineffectual.

Union Carbide's response to the Bhopal, India, gas leak that killed thousands and injured hundreds of thousands comprised bolstering and corrective action in the form of aid to victims. Although these strategies were appropriate, they failed to address a very important question: What, if anything, would Union Carbide do to prevent another tragedy? Failure to answer this most important question undermined the image repair effort.

The California Department of Consumer Affairs accused Sears Auto Centers of consumer fraud in 1992. Sears employed newspaper advertisements, television spots, and other messages to carry its defense through two phases. At first, the company used denial and attack of accuser. When California's accusations were corroborated by accusations of auto repair fraud in New Jersey, Sears finally announced corrective action. It never apologized for fraud, and the defense was largely ineffectual (Benoit, 1995b), including corrective action that was not employed quickly enough to be effective.

U.S. Airways flight 427 crashed in September 1994 while approaching the Pittsburgh, Pennsylvania, airport, killing 132 people. The company took out full-page newspaper advertisements to repair its image. It made use of three image repair strategies: bolstering, denial, and corrective action. However, Benoit and Czerwinski (1997) characterized its proposed action as "pseudo-corrective action." The changes it proclaimed "were not designed to actually improve its safety, but simply to convince the flying public of USAir's current safety" (p. 51). This defense was ineffective.

Newt Gingrich was accused of improprieties in a multi-million-dollar book deal. One of the image repair strategies he employed was corrective action by returning the advance. Kennedy and Benoit (1997) argued that if the book deal were on the up and up—as Gingrich asserted—there would be no need to return the advance. Gingrich's action merely shifted when he would accrue the profits from the deal; it did not ensure that the deal was proper.

Garry Trudeau's comic strip *Doonesbury* advanced several criticisms of the tobacco industry, arguing that tobacco products are dangerous and addictive—and these accusations were intensified with the argument that tobacco products were deliberately marketed to children (Benoit & Hirson, 2001). The Tobacco Institute (an industry

organization) created a pamphlet to respond to the attack: *Smoking and Young People: Where the Tobacco Industry Stands*. The Tobacco Institute's message employed denial, corrective action, blame shifting, bolstering, and good intentions. However, these strategies did not work well together. Corrective action is not consistent with denial (there is no need to alter marketing procedures if the companies are not marketing to children); key accusations in the attack were ignored (the public widely believes tobacco to be dangerous); and the implementation of the strategies in discourse was weak (e.g., the pamphlet denied that advertising caused smoking without any evidence).

Several hundred people died in automobile crashes when Firestone tires failed ("blowouts"). The company attempted to shift blame to Ford (many of these accidents happened in Ford Explorer vehicles). Firestone used bolstering and denial, strategies that were undermined by its use of mortification and corrective action. Furthermore, the corrective action in this case was too vague to be persuasive (Blaney, Benoit, & Brazeal, 2002).

Hurricane Katrina caused death, injury, dislocation, and property damage. President Bush was accused of leading a slow and inept response. He utilized bolstering, defeasibility, and corrective action to respond to these accusations. Bolstering could not counter his slow response, defeasibility portrayed Bush as not being in control of events, and his corrective action was too little, too late.

Grunenthal offered image repair for the birth defects that arose from its drug thalidomide. The company used mortification, corrective action (past and future), defeasibility, and differentiation. Its use of corrective action was vague, and the company waited almost 50 years before apologizing (Benoit, 2015). The New Orleans Saints football franchise was revealed to have paid bounties to players who hurt opposing players. The organization proffered a defense of mortification, corrective action: ineffectual, paying to hurt opposing players is terrible sportsman [person] ship (Benoit, 2015). Rupert Murdoch's *News of the World* was shown to have engaged in relentless phone hacking, with targets including victims of crimes. The mogul used mortification, corrective action, and compensation. However, his defense was not timely enough to be effective (Benoit, 2015).

These case studies indicate some of the conditions that influence

the persuasiveness of corrective action. The defense should actually fix (and/or prevent future occurrences of) the problem. To have the best chance of success, the person or organization employing corrective action should do so in a timely fashion (note that in the contemporary environment of social media, corrective action should be used very quickly indeed). The defense should be internally consistent (e.g., do not deny the existence of a problem and propose corrective action).

United Airlines's Defense

United Airlines's image repair evolved through two phases. At first, the discourse attempted to downplay the offense, relying mainly on differentiation and mortification. United's initial response provoked outrage. The second phase appeared to emerge grudgingly, using mortification and corrective action. The "phases" of image repair have become highly compressed with the advent of social media (consider the time it took for the phases of President Reagan's Iran–Contra defense to develop).

Differentiation: "Re-accommodating Passengers"

United's CEO Oscar Munoz released a statement on the Monday afternoon following the event. He used bolstering, explaining that "all of us here at United" were upset by the event. He also offered two apologies (mortification): "I apologize for having to re-accommodate these customers" (Thomas, 2017; see also United News Release, 2017a) and for the "over-book situation" (McCann, 2017). Both of these apologies incorporated differentiation: "re-accommodate" sounds less offensive than "drag passengers off an airline," while "over-booked" sounds better than "we kicked a seated passenger off an airplane to make room for our employees." United had not gotten off to a good start in this crisis.

On Monday, Munoz also sent a letter to United employees, which quickly became public. In it, the CEO used provocation, characterizing Dao as "disruptive and belligerent." The CEO also put defeasibility into play, stating that "our agents were left with no choice but to call Chicago Aviation Security Officers to assist in removing the customer from the flight" (McCann, 2017). Munoz also employed bolstering, reassuring his employees, "I want to commend you for continuing to go above

and beyond to ensure we fly right.” Munoz declared that “treating our customers and each other with respect and dignity is at the core of who we are” (McCann, 2017). These utterances clearly implied that no wrongdoing occurred. Munoz did apologize to other passengers on the flight, but not to Dao (McCann, 2017). Observers were unlikely to see United’s treatment of Dao as commendable or to believe that United’s philosophy was “treating customers . . . with respect.”

Mortification and Corrective Action: United’s “Do-Over”

On Tuesday, United’s CEO apparently realized he was piloting his company into a hurricane; he radically changed the course of his defense. Munoz declared, “It’s never too late to do the right thing” (Mutzabaugh, 2017; see also United Press Release, 2017c). He asserted that he was “disturbed” by the events of Sunday (McCann, 2017), enacting bolstering. He also offered another apology: “My deepest apologies for what happened.” He explicitly included the victim (although he did not mention Dao by name): “I deeply apologize to the customer forcibly removed and to all of the customers aboard. No one should ever be mistreated this way.” He also declared, “We take full responsibility” (McCann, 2017; see also United News Release, 2017b). Thus, in his “do-over,” Munoz utilized mortification, saying that he was disturbed, that the offensive act was clearly wrong, and that he accepted responsibility for it (eventually).

Once United confessed that it had treated Dao badly, corrective action was needed. Munoz declared, “We will work to make it right” (McCann, 2017). He asserted, “I have committed to our customers and our employees that we are going to fix what’s broken so this never happens again.” He ended his statement by assuring his audience, “I promise you we will do better” (McCann, 2017). This phase of the image repair effort sounded sharply different from the prior phase. This is a clear illustration of corrective action.

On Wednesday, Munoz appeared on ABC’s *Good Morning America*, saying that he felt “shame” when he watched the video, enacting mortification again. He reiterated his use of corrective action: “This can never—will never—happen again on a United Airlines Flight. That’s my premise and that’s my promise” (McCann, 2017). Later that day, the CEO announced that he would give a complete refund to everyone who

had been on the flight (McCann, 2017), an instance of compensation.

The key elements of Phase 2 were repeated on Thursday. Mortification surfaced again when Munoz said, “We continue to express our sincerest apology to Dr. Dao.” The CEO also returned to corrective action: We will “make this right”; “we cannot stress enough that we remain steadfast in our commitment to make this right” (McCann, 2017; United Press Release, 2017c). United’s promise of corrective action was made more specific (Mann, 2017):

We are committing that United will not ask law enforcement officers to remove passengers from our flights unless it is a matter of safety and security. Second, we’ve started a thorough review of policies that govern crew movement, incentivising volunteers in this situation, how we handle oversold situations and an examination of how we partner with airport authorities and local law enforcement. Third, we will fully review and improve our training programs to ensure our employees are prepared and empowered to put our customers first.

These instances of corrective action aimed at preventing recurrence of the offensive act.

Evaluation

It was a mistake to drag a passenger off the airplane: The crisis probably could have been avoided if United had not waited until after passengers had boarded to squeeze its flight crew onto the airplane or, alternatively, if United had offered larger flight coupons to encourage passengers to deplane. Furthermore, if United had realized how damaging the video was, Munoz would never have tried to downplay its offense (characterizing its act as “re-accommodation” and as an instance of overbooking). However, United’s initial response not only failed to put out the public relations fire but actually threw fuel on the flames, making the crisis even worse. Contrast Munoz’s characterization of Dao as “disruptive and belligerent” with his assertion that “no one should ever be mistreated this way.”

The initial defense used an interesting, and ineffectual, combination

of differentiation and mortification (I do not argue that it is impossible for differentiation and mortification to work together; they did not work well in United's defense). United did not apologize for the actual offensive act depicted in the video but for two less offensive actions: "reaccommodating" a passenger and "overbooking." The millions who viewed the video would not be likely to agree that United was merely working to "re-accommodate" a passenger. For example, as @sassylibrarian1 wrote, "Nice to know 're-accommodate' on United now means 'drag you violently out of your seat'" (Thomas, 2017). Furthermore, the flight was not overbooked, despite Munoz's apology for the "over-book situation"; United wanted to put its employees onto a fully booked (and already boarded) flight. Munoz was correct to say that "it's never too late to do the right thing." That does not mean, however, that doing the "right thing" eventually will work as well as it would have worked if it had been implemented in a timely fashion. United eventually adopted a reasonable defense—apologizing for its actual offense and detailing multiple steps to prevent similar episodes—but this should have been its initial position.

Discussion

One implication of this case study is that the rapid rise of new technology is now a fundamental element of the crisis communication situation. Contemporary society has embraced social media and the capability of smartphones to record photos and/or video of instances of misbehavior. Furthermore, the ability of the Internet and social media to provide almost instantaneous distribution of incriminating pictures, videos, and other accusatory messages has forever altered crisis communication (see, e.g., Glantz & Benoit, 2017). Persuasive attacks or criticisms are an important component of the current media environment. Corporations such as United Airlines are often very conservative. However, that stance is at odds with the need to react almost instantaneously to crises.

United Airlines had previously suffered Internet-facilitated damage to its image. United baggage handlers damaged a guitar in transit; when the victim received the run-around from United, a video called *United*

Breaks Guitars went viral (Carroll, 2009) and forced the company to address the offensive act. However, it does not appear as if the company learned its lesson. The Internet allowed the latest crisis to unfold seemingly at hyperspeed, with the offensive act committed on Sunday, the initial defense and outraged reactions occurring on Monday, and the revised defense appearing on Tuesday. It is vital for corporations, organizations, and individuals to understand the nature of our current media environment.

Corporate image repair efforts, as in political image repair (Benoit, 1982, on Watergate; Benoit, Gullifor, & Panici, 1991, on Reagan), have evolved through phases before (see, e.g., Benoit, 1995b, on Sears; Brinson & Benoit, 1996, on Dow Corning). The simple fact that Munoz felt forced to enact a do-over is clear evidence that his initial stance was ineffectual. The new position was the right one; unfortunately for United, it came too late—and shifting his position so violently undermined Munoz's credibility. Another implication of this case study is the idea that it is not enough to apologize for *something*—one must apologize for the perceived offense. Using mortification is likely to damage face: No one enjoys confessing wrongdoing. Munoz's attempt to limit the embarrassment of mortification by reducing the offensiveness of the offensive act for which he apologized—apologizing for “re-accommodating” a passenger rather than apologizing for dragging a bloody passenger off the plane—backfired as the response to the video mounted. It is a wonder that United's stockholders have not reaccommodated Munoz by freeing him for other employment opportunities.

Conclusion

This essay reinforces the importance of corrective action as a potential strategy in crisis communication theory. Initially, situational crisis communication theory included corrective action as an option for crisis communication (see Coombs, 1998; Coombs & Holladay, 2004). However, later incarnations of the theory omitted this important possibility (Coombs, 2012; see also Coombs & Holladay, 1996). Corrective action is not always appropriate, nor is it necessarily persuasive. However, it must be a strategy in the toolbox of crisis communication.

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The Health Belief Model and Preventive Measures: A Study of the Ministry of Health Campaign on Coronavirus in Saudi Arabia

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ABSTRACT

As of August 2017, approximately 684 people have died in the Kingdom of Saudi Arabia since the coronavirus Middle East respiratory syndrome (MERS-CoV) outbreak in 2012. Saudi Arabia became the leading country for the number of illnesses and deaths related to MERS-CoV, making this a health megacrisis. Early Ministry of Health (MOH) communication efforts proved ineffective and created anger, confusion, and mistrust. Changes in command, implementation of new guidelines and policies, and a health preventive campaign have been instrumental in the fight. The MOH launched the “We Can Stop It” campaign in 2015. This study shares results from a survey of 875 students from King Saud University on the credibility of MOH information and effectiveness of the campaign’s prevention recommendations. Results show that the MOH is a credible source of information and that Saudis are following most, but not all, recommended preventive measures. Those persons with higher perceived benefits and lower barriers are more likely to follow recommended guidelines.

KEYWORDS: Coronavirus; MERS-CoV; Ministry of Health of the Kingdom of Saudi Arabia; health belief model; health campaigns

Beginning in September 2012, a major health crisis in the Kingdom of Saudi Arabia (KSA) erupted. The coronavirus Middle East respiratory syndrome (MERS-CoV), a serious and sometimes fatal infection, had infected more than 1,668 people by August 3, 2017, and taken the lives of 684 people in the KSA (Ministry of Health of the Kingdom of Saudi Arabia [MOH], 2017). These numbers ranked the KSA as the country with the highest number of cases in the world, prompting the Ministry

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of Health of the KSA (MOH) to take action (Centers for Disease Control and Prevention [CDC], 2015, 2017; MOH, 2017). The problem is that initial responses from the MOH left KSA residents confused, angry, and suspicious of the MOH's mixed messages. Saudis were first told by minister of health Abdullah al Rebeeah that he had no idea why the disease was spreading across the KSA, but instead of offering precautionary measures, he said that no clinical measures were needed (Alomran, Knickmeyer, & McKay, 2014). This created a megacrisis for the KSA, which faced a significant threat to the health of its people without knowing why or how to stop the virus from spreading.

A megacrisis is defined as "a set of interacting crises that are severe in impact, complex in nature, and global in fallout, with no seeming end in sight" (Yen & Salmon, 2017, p. 1). The impact of MERS-CoV on not only the KSA but also the world defined MERS-CoV as a megacrisis. The World Health Organization (WHO; 2016) has stated that other countries, such as South Korea, are in states of high alert, with fears that the outbreak could cause severe harm to health and the economic and social services of countries where health systems continue to be unprepared. Furthermore, the WHO (2016) warned that hospital outbreaks of MERS-CoV in the KSA "could escalate both nationally and internationally into a perpetual global health threat" (para. 1). The number of deaths, the absence of vaccines to treat the disease, and the complexity of the disease and how it transmits further qualify MERS-CoV as a megacrisis.

It took the firing of Abdullah al Rebeeah and the hiring of a new minister of health before the MOH launched a comprehensive campaign on March 4, 2015, called "We Can Stop It," on its website. The goals of the campaign were to educate the public about MERS-CoV and to inform them about prevention best practices (MOH, 2015). The campaign incorporated both traditional and social media that included key messages and specific preventive actions. This may indicate that people started to gain trust in the information the MOH disseminated after its initial response to the MERS-CoV crisis. Nonetheless, the extent to which this campaign has been effective in terms of education and prevention, and in improving the MOH's credibility, is unknown.

The purpose of this study is to assess the extent to which KSA residents are adhering to the preventive measures promoted by the MOH's

“We Can Stop It” campaign. Using the health belief model (HBM), we surveyed students from King Saud University (KSU) to assess the credibility of the MOH’s messages. We then analyzed the perceived susceptibility and perceived severity of contracting the disease along with the perceived benefits of and perceived barriers to following the MOH’s prevention recommendations. We further analyzed the extent to which the campaign messages impacted cues to action and self-efficacy to perform the recommended preventive behaviors.

Case Study

The MOH was established in 1951 and charged with carrying out health affairs in the kingdom, including all regulations, laws, and legislation for all governmental and private health sectors in the KSA. It monitors and regulates health institutions’ performance and offers training to all health practitioners. Approximately 6%–7% of the country’s budget is allotted annually to the MOH to develop and enhance health services (MOH, 2017). Much of the money is spent on awareness and education campaigns, using multiple communication channels that include traditional media and, more recently, social media.

The first case of MERS-CoV was documented in the KSA in September 2012. The WHO (2015) defined MERS as a “viral respiratory disease caused by novel MERS-CoV” (para. 1). Its symptoms include severe acute respiratory illness, with fever, cough, shortness of breath, congestion in the nose or throat, and possible diarrhea (CDC, 2015; MOH, 2017). The virus circulated mainly in countries inside the Arabian Peninsula, such as the KSA, the United Arab Emirates, Kuwait, and Qatar, as well as in some Middle Eastern countries, such as Turkey and Egypt (WHO, 2015a). Although the majority of cases of MERS-CoV are attributed to human–human infections, camels are believed to play a significant role in transmitting the disease among human beings. However, researchers have not yet determined the exact role and route of the transmission (WHO, 2015b).

Initial Crisis Response

When the outbreak of MERS-CoV first hit the KSA, the MOH did a poor job of providing clear and updated information. For example,

during a news conference, Minister al Rabeeah told the public that he had no idea why MERS was spreading across the KSA and said that no clinical measures were needed during pilgrim season, a time during which the KSA hosts millions of people every year from all around the world (Alomran et al., 2014). The MOH provided no guidelines, leaving people and health care providers panicked, confused, and angered (British Broadcasting Corporation, 2014). There was also no precrisis planning, meaning that the MOH had to start from scratch in understanding the virus and how to communicate preventive measures to the public. Saudi physicians and some international virologists from research centers echoed the public outcry, stating that poor communication and lack of accountability have hindered the KSA's ability to handle such crises (Reuters, 2014). Poor communication from the MOH trickled down to other health entities, intensifying the problem and creating a lack of communication and mismanagement between hospitals, government departments, and laboratories. This caused delays in reporting and recording MERS-CoV cases, according to some Saudi physicians (Reuters, 2014). As a result, Minister al Rabeeah was fired from his position. Two other ministers were hired and fired within a short period of time. It was not until 2014, two years after the initial outbreak, that people witnessed dramatic changes in how the MOH communicated with the public. This provided new hope for change and improvement in the MOH's policies concerning how it handles crisis responses (Reuters, 2014).

New Efforts, New Hope

The MOH took significant steps to reduce the spread of MERS-CoV by implementing new communication strategies and prevention guidelines. The MOH stated that it "put in place measures to ensure best practices of data gathering, reporting (and) transparency are strictly observed" and "to ensure that from now on, case information will be accurate, reliable and timely" (Reuters, 2014, para. 5). In an effort to regain the public's trust, the MOH established a Command and Control Center (CCC) in June 2014 consisting of physicians, scientists, and experts in partnership with international organizations, such as the WHO. The CCC's role is to conduct research, control infection,

manage clinical operations, and conduct data analysis with regard to MERS-CoV (MOH, 2017; Reuters, 2014). As a result, the MOH started to establish two-way communication by releasing more accurate and timely information to the public through multiple communication channels, including social media in different languages.

On March 4, 2015, the MOH launched its most aggressive and comprehensive MERS-CoV campaign, called “We Can Stop It.” The aim of this campaign was to increase awareness about MERS-CoV and inform the Saudi people about best practices to prevent the spread of MERS-CoV disease (MOH, 2015). Traditional media, including radio, television, and newspapers, and social media are being used to reach various audience segments. Preventive messages are being conveyed through posters, brochures, and interviews with health experts. Key messages include (a) information on how the virus is transmitted, (b) signs and symptoms, and (c) what to do if one feels sick. Additional resources are also provided.

The campaign has disseminated short videos via social media to deliver preventive and instructional health messages to encourage individuals to wash their hands with soap for at least 20 seconds, follow a healthy diet to boost the immune system, exercise, avoid camels, and wear masks as well as instructing them how to sneeze to avoid the spread of germs. Table 1 provides examples of key executional and preventive messages distributed via multiple communication channels.

The use of Twitter has been instrumental in increasing awareness and knowledge of the disease while offering preventive measures. People are asked to link their Twitter accounts to the “We Can Stop It” campaign to receive and retweet weekly updated health messages from the MOH. The number of participants on Twitter has reached more than 8,480,718 (MOH, 2017).

The developers of this campaign further recognized the importance of audience segmentation, a key ingredient to a successful campaign that was missing from earlier efforts. Campaign messages were developed specifically for high-risk groups: (a) parents and teachers, (b) patients and their families, (c) health care professionals, (d) camel herders, and (e) those in the workforce (MOH, 2017). Although the frequency of coming into contact with a camel depends on individual lifestyle,

TABLE 1 *Key Preventive Messages Described in the Campaign Materials*

Channel	Type of message	Message
Posters distributed in hospitals, workplace, schools, and shopping malls	Educational and preventive	Definition of MERS-CoV, how it transmits, and its symptoms; poster also includes the MERS-CoV preventive measures, such as wearing a mask and using a tissue when coughing and sneezing
Videos distributed via the MOH's YouTube channel and social media, such as Twitter and Facebook	Preventive	How to avoid MERS-CoV through adopting health behaviors like frequent handwashing
Videos distributed via the MOH's YouTube channel and social media platforms	Preventive	What to do if a person develops MERS-CoV symptoms
Videos mainly circulated via the MOH's Twitter, Facebook, and YouTube accounts by including #MERS-CoV	Educational	The proper way of wearing and using masks
Videos mainly circulated via the MOH's Twitter, Facebook, and YouTube accounts by including #MERS-CoV	Educational	Important guidelines outlining how to handle camels and avoid those infected with MERS-CoV
Twitter: People were encouraged to participate in a campaign in Twitter by registering their accounts with the MOH. The MOH would tweet about MERS-CoV weekly on behalf of each registered account.	Educational and preventive	All information related to MERS-CoV and healthy behaviors
TV	Educational, preventive, Q&A	All information related to MERS-CoV and healthy behaviors discussed with health experts and officials from MOH and different hospitals
Radio	Updates and reports	What the MOH is doing to reduce MERS-CoV

campaign messages address this audience because Riyadh and Jeddah have the largest camel trades in the country.

Literature Review on Health Belief Model

The HBM was developed in the 1950s with the aim of explaining and predicting individuals' health behaviors (Champion & Skinner, 2008; National Cancer Institute, 2005). The HBM is a psychological model developed by psychologists Hochbaum, Rosenstock, and Kegels (1952/2016), who worked for the U.S. Public Health Service (Glanz, Rimer, & Lewis, 2002; Janz & Becker, 1984), and was first used to gain a better understanding of why free tuberculosis (TB) health screening programs were not very successful (Glanz et al., 2002; Hochbaum, 1958; Janz & Becker, 1984). Particularly, the HBM aims to aid understanding of why individuals do not adopt disease strategies and behaviors during health campaigns and refuse to engage in preventive behaviors (Hayden, 2013; Hochbaum, 1958; Janz & Becker, 1984; Thweatt & Query, 2005).

The HBM encompasses four dimensions: perceived susceptibility, perceived severity, perceived benefits, and perceived risks. *Perceived susceptibility* posits that the more an individual perceives the risk of a disease, the more likely he or she will be to engage in behaviors to decrease that risk (Glanz et al., 2002; Hayden, 2013; Hochbaum, 1958; Janz & Becker, 1984). *Perceived severity* includes some evaluation of the consequences of an illness based on medical information and knowledge as well as some beliefs about the negative consequences of a certain behavior or disease that might occur for an individual (Hayden, 2013; Janz & Becker, 1984). The third dimension, *perceived benefits*, suggests that individuals perceive the value and usefulness of adopting new behaviors in regard to minimizing the risk of an illness and will likely adopt new behaviors based on their perceptions of their benefits in reducing threats (Hayden, 2013; Janz & Becker, 1984). The fourth dimension, *perceived barriers*, is the most powerful dimension of HBM (Janz & Becker, 1984), in that individuals evaluate the obstacles and difficulties they might encounter when adopting a new behavior. This dimension, however, might result in individuals giving up on adopting a new behavior (Hayden, 2013; Janz & Becker, 1984).

Individuals usually evaluate the benefits and consequences of a new behavior before overcoming the old one (Hayden, 2013).

The HBM also suggests that besides the four perceptions, individuals' behaviors can be influenced by what is called a *cue to action*, which includes external and internal cues. External cues are events, people, mass media, health providers, and any external factor that can trigger people to change their behaviors (Hayden, 2013; Janz & Becker, 1984). Internal cues include psychological cues, such as pain and symptoms, that trigger individuals to adopt a new behavior (Janz & Becker, 1984). Moreover, Bandura integrated a self-efficacy dimension into the model in 1988 (Rosenstock, Strecher, & Becker, 1988). This dimension is concerned about an individual's own ability and capability to make a change, such as adopting new, healthier behaviors. Studies found that individuals who believe in their ability to achieve, and skill in achieving, a certain goal are more likely to attain that goal (Hayden, 2013).

Recently, the HBM has been widely used in health education campaigns and programs (Glanz et al., 2002) and has shown significant success in encouraging individuals to take preventive measures and adopt new behaviors to address diverse health issues around the world (see, for a study of vaccines among hemodialysis patients, Adams, Hall, & Fulghum, 2014; for a study of reducing hypertension among women by encouraging physical activity, Hoseini, Maleki, Moeini, & Sharifirad, 2014; for a study of a nutrition program by increasing calcium intake among girls in high schools, Naghashpour, Shakerinejad, Lourizadeh, Hajinajaf, & Jarvandi, 2014; and for a study of injury prevention among high school students, Cao, Chen, & Wang, 2014). Compared to other models, the HBM expands to support and maintain health behavior change interventions (Champion & Skinner, 2008). Additionally, the model has been applied to many health behaviors and in many campaigns, including in several Arab countries, such as Jordan, the KSA, and Egypt, and has shown significant results (see, for a study of breast cancer in Jordan, Mikhail & Petro-Nustas, 2001; for a study of colorectal cancer screening in the KSA, Almadi et al., 2015; and for a study in the practice of self-examination for breast cancer among Saudi women, Abolfotouh et al., 2015).

The HBM is suitable for assessing the impact of the MOH's messages

on the perceived susceptibility and perceived severity of contracting the disease and on the perceived benefits of and perceived barriers to following MOH preventive guidelines. The following three research questions (RQs) were derived from this review:

RQ1: To what extent is the MOH seen as a credible source of information on MERS-CoV?

RQ2: What is the impact of the “We Can Stop It” campaign on the perceived susceptibility and perceived severity of contracting the disease and on the perceived benefits of and perceived barriers to following MOH preventive guidelines?

RQ3: To what extent have the MOH’s campaign messages impacted cues to action and self-efficacy?

Method

The Campaign

The “We Can Stop It” campaign includes components on how the disease is transmitted, signs and symptoms, and what to do if one feels ill. Additional tactics include awareness presentations in schools, shopping malls, and universities; established school guidelines to educate parents, teachers, and students on the proper ways to prevent MERS-CoV; presentations across the country by health experts; and social events to teach prevention of the disease. This study focuses specifically on key preventive messages described in the campaign materials. These include washing hands frequently, wearing a mask when visiting sick people, staying away from camels, getting enough sleep and exercise, eating a healthy diet, and covering the mouth when coughing and sneezing. Many of these prevention tactics are demonstrated on posters and in videos and are shared on the MOH’s website and on social media.

Institutional Review Board Approval

This study was reviewed and approved prior to its implementation by the Institutional Review Board (IRB) of Bowling Green State University (BGSU), Bowling Green, Ohio. The study was also reviewed and approved prior to its implementation by the Deanship of Scientific

Research at KSU, Riyadh. After obtaining approval from the IRB at BGSU and the Deanship of Scientific Research at KSU, the researcher contacted the Deanship of E-Transaction and Communication to disseminate the e-mail invitation with the survey link.

Sample

A convenience online sampling method was used among college students at KSU. KSU enrolls approximately 50,000 students. The city of Riyadh was selected because it is one of two major cities with the highest number of MERS-CoV cases in the KSA (MOH, 2015). The university hosts domestic students from regions across the country as well as international students.

Data were collected at the end of the spring semester and the beginning of summer 2016. An invitation to participate in an online survey designed through Qualtrics was sent to the Deanship of E-Transactions and Communications at KSU, and from there, it was sent directly to the students by e-mail. Three reminders were sent. A total 875 students participated in the survey, with a completion rate of 63% ($n = 551$). All data were analyzed using SPSS.

Instrument

The researchers used the HBM Scale (Champion, 1993) but modified the scale to make it applicable to this study by substituting *MERS-CoV* for *breast cancer*. For example, the original scale asked respondents to agree or disagree with the statement "It is extremely likely I will get breast cancer," while in this study, the item was modified to read "It is extremely likely I will get MERS-CoV." The questionnaire consisted of 43 items addressing the HBM's variables. Seven questions examined perceived severity, five questions perceived susceptibility, seven questions perceived barriers, seven questions perceived benefits, eight questions cues to action, and nine questions perceived self-efficacy. A 5-point Likert scale was used, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores on the six scales mean greater perceived severity, perceived susceptibility, perceived barriers, perceived benefits, cues to action, and self-efficacy, respectively. Internal consistency of the original scale was measured using Cronbach's alpha reliability coefficients,

which yielded results from .80 to .93. The content validity of this scale was also tested by three well-known judges who were familiar with the HBM (Champion, 1993). The scale used in this study was tested for reliability and validity and showed similar results to Champion's scale (Table 1). The study also adapted Meyer's media credibility scale of five dimensions—believability, accuracy, trustworthiness, fairness, and completeness—to assess the credibility of coronavirus messages disseminated across different communication channels (Meyer, 1988). Meyer's scale shows high reliability and high validity (West, 1994).

Respondents who never sought MERS-CoV information were blocked from answering and assessing the credibility of communication channels (media credibility scale) as well as the likelihood of using different communication channels to seek MERS-CoV information; they were automatically diverted to demographic questions. The questionnaire also included the MOH's recommended measures to prevent MERS-CoV.

Validity of HBM MERS-CoV scale

Prior to IRB approval, the survey went through translation and validity processes. The English-language questionnaire was assessed for content and face validity by three experts from BGSU who were professors and experts in health communication. Changes were made based on the experts' recommendations. Additionally, the researcher sent the questionnaire to a doctor and an epidemiologist to ensure appropriateness of language used, comprehension, and correctness of terminology. Modifications were made based on all experts' recommendations and notes.

After the editing process, cognitive testing was conducted by giving the survey to three English speakers. Each English speaker was asked to review the clarity, easiness, and appropriateness of the survey language. Comments and problems led to some revisions to the language and format of the questionnaire. After ensuring the clarity of the language used in the instrument, two native Arabic speakers who studied in the United States and hold master's degrees translated the questionnaire into Arabic. The researcher verified the translation to ensure that the correctness of the translation reflected the study aim and scope. Finally,

the translation of the questionnaire was reviewed and verified by a faculty member in the Department of Arabic at KSU who held a master's degree in linguistic studies from the United Kingdom. Modifications were made to several items on the Arabic questionnaire regarding word choice and grammar. The researcher then conducted a pilot study by asking five college students, both male and female, to take the Arabic and English questionnaires to ensure clarity of the language. Few items were adjusted based on students' comments. Participants in the study were allowed to choose the language of the study (Arabic or English).

Reliabilities of the HBM subscales in this study were analyzed using Cronbach's alpha. Results were similar to the original scales Champion (1993) obtained (Table 2).

Results

Descriptive Statistics

Of the 875 students who participated in the survey, 65% were women and 35% were men. Approximately 80% of the students were aged 18–24 years, followed by 18% who were 25–34 years old. Approximately 12% of respondents were first-year students, 17% were second-year students, 17% were third-year students, and 16% were fourth-year students. Approximately 12% were fifth- and sixth-year students. Graduate students accounted for approximately 26% of the respondents (Table 3).

TABLE 2 *Health Belief Model Reliability*

Subscale	Current data	Champion's data
Susceptibility	.84	.93
Severity	.82	.80
Barriers	.71	.88
Benefits	.77	.80
Cues to action	.80	.83
Self-efficacy	.82	.88

TABLE 3 *Characteristics of the Study Sample*

Sample characteristic	N	%
Age (years)		
18–24	436	79.13
25–34	99	17.95
35–44	15	2.74
45–54	1	0.18
Education		
First year in college	64	11.62
Second year in college	92	16.70
Third year in college	95	17.24
Fourth year in college	88	15.97
Fifth year in college	45	8.17
Sixth year in college	25	4.54
Graduate student	142	25.77
Gender		
Female	359	65.15
Male	192	34.85
Field of study		
Health or related major	163	29.58
Agriculture or related major	8	1.45

Research Question 1

Participants in the study were first asked questions related to information seeking regarding MERS-CoV. These questions asked participants how often they sought information about MERS-CoV, where they first sought this information, and their likelihood of using various communication channels when seeking information. The study found that approximately 52% of participants sought MERS-CoV information one to two times a year, 23% sought it once every other month, 10.3%

sought it once every month, 10% sought it one to two times per month, 5% sought it one to two times a week, and less than 1% sought MERS-CoV information daily.

Approximately 87% said they would first go to the Internet. Approximately 72% of Saudis say they are very likely or likely to seek information about MERS-CoV from their doctors. The MOH Twitter site and website ranked as the third and fourth most highly chosen communication channels for seeking information, with 70% and 65%, respectively. Interestingly, traditional media outlets did not rank highly as information-seeking channels, with 40% citing TV, 17% citing radio, and 13% citing newspapers as their likely or very likely sources for seeking information about MERS-CoV.

Participants were asked to what extent the crisis information obtained about MERS-CoV from each medium is believable, accurate, trustworthy, unbiased, and complete (Meyer, 1988). A 5-point Likert scale ranging from 1 (*not accurate at all*) to 5 (*very accurate*) was used for all five dimensions. Higher scores in the five dimensions mean greater believability, accuracy, trustworthiness, unbiasedness, and completeness. Participants were given 16 communication channels, such as the WHO, the CDC, family and friends, and doctors or health providers, to rate credibility in regard to MERS-CoV information. The study showed that the MOH's website rates as the most believable ($M = 4.56$, $SD = 0.76$), the most accurate ($M = 4.44$, $SD = 0.78$), the most trustworthy ($M = 4.45$, $SD = 0.80$), and the most complete source ($M = 4.13$, $SD = 1.00$), and it rated highly for being unbiased ($M = 3.51$, $SD = 1.26$). The MOH's Twitter account was ranked second after its website in regard to believability ($M = 4.46$, $SD = 0.83$), accuracy ($M = 4.30$, $SD = 0.89$), and trustworthiness ($M = 4.37$, $SD = 0.85$) and rated highly for being unbiased and for being complete. The MOH's YouTube channel had strong scores on believability ($M = 4.30$, $SD = 0.90$), accuracy ($M = 4.17$, $SD = 0.92$), and trustworthiness ($M = 4.24$, $SD = 0.91$) but lower scores on completeness ($M = 3.85$, $SD = 1.07$) and being unbiased ($M = 3.45$, $SD = 1.18$). The MOH's Facebook page was not seen to be as accurate ($M = 3.97$, $SD = 1.00$) or as trustworthy ($M = 4.01$, $SD = 1.02$) as its website or Twitter site.

Therefore, when combining the media credibility subscale, the

TABLE 4 Subscale Correlations

Subscale	Spearman rho	SD	M
Susceptibility	0.078	0.74	2.25
Severity	0.085*	0.77	2.59
Benefits	0.075	0.61	3.78
Barriers	-0.271**	0.69	2.43

* $p < .05$. ** $p < .001$ (2-tailed).

descriptive analysis shows that the MOH’s website is perceived to be most credible ($M = 21.17$, $SD = 3.33$), followed by the WHO ($M = 20.71$, $SD = 3.72$), the MOH Twitter site ($M = 20.63$, $SD = 3.61$), the CDC ($M = 20.38$, $SD = 3.89$), and the MOH YouTube channel ($M = 20.14$, $SD = 3.78$).

Research Question 2

Kruskal–Wallis, with questions that have three choices (yes, no, I don’t know), and Mann–Whitney, with two choices (yes, no), were run to test the correlations between the HBM subscales and adherence to the preventive measures that the MOH has delivered and recommended.

Frequency of handwashing. Respondents were asked about the frequency of daily handwashing. The data for individuals’ HBM subscales were analyzed using the Spearman correlation coefficient. The findings are summarized in Table 4.

The results show that perceived severity ($p < .05$) and perceived barriers ($p < .001$) are significantly related with the frequency of handwashing. Perceived barriers are negatively related with the frequency of handwashing. Thus respondents with higher perceived barriers are less likely to wash their hands than those with lower perceived barriers. The results also show a positive relationship between perceived severity and the frequency of handwashing. Respondents with higher perceived severity scores are more likely to wash their hands than those with lower scores. The relationship between perceived susceptibility and benefits and the frequency of handwashing was not significant.

Wearing masks when visiting sick people. Respondents who said

they visited sick people were asked if they wore a mask. The nonparametric Kruskal–Wallis test indicates that the perceived susceptibility, $\chi^2(2, N = 552) = 8.443, p < .001$, perceived severity, $\chi^2(2, N = 552) = 6.982, p < .05$, perceived benefits, $\chi^2(2, N = 552) = 30.445, p < .001$, and perceived barriers, $\chi^2(2, N = 552) = 42.996, p < .001$, have significant relationships with the preventive measure of wearing a mask when visiting sick people. The data show that people with higher susceptibility scores ($Mdn = 13$) are more likely to adhere to this behavior than those with lower scores ($Mdn = 12$). The results also show that respondents with higher benefits scores ($Mdn = 28$) are more likely to wear a mask than those with lower scores ($Mdn = 26$). However, respondents with high severity scores ($Mdn = 18$) are less likely to wear a mask than those with lower scores ($Mdn = 16$). Similarly, respondents with higher barriers scores ($Mdn = 18$) are less likely to wear a mask when visiting sick people than respondents with lower barriers scores ($Mdn = 14$).

Staying away from camels. Respondents were asked if they kept away from camels. The Mann–Whitney U -test indicated that perceived benefits, $U = 7,747.5, p < .001$, and barriers, $U = 9,565.0, Z = -3.322, p < .001$, have significant relationships with this preventive measure. Respondents with higher benefits scores ($Mdn = 27$) are more likely to keep away from camels than those with lower scores ($Mdn = 25$). Additionally, respondents with higher barriers scores ($Mdn = 20$) are less likely to follow this preventive measure than those with lower scores ($Mdn = 16$). Relationships between susceptibility and severity and staying away from camels were not significant.

Getting enough sleep. Participants were asked if they got enough sleep every day. Participants defined for themselves if they thought they were getting enough sleep and answered this question yes or no. The Mann–Whitney U -test was used to examine the association between each subscale of the HBM and the preventive MERS-CoV measure of getting enough sleep. The findings indicate significant relationships between perceived severity, $U = 29,095.0, Z = -2.551, p < .05$, perceived benefits, $U = 29,819.0, Z = -2.837, p < .05$, and perceived barriers, $U = 28,597.5, p < .01$, and getting enough sleep. Respondent with high benefit scores ($Mdn = 27$) are more likely to get enough sleep than respondents with lower scores ($Mdn = 26$). In contrast, respondents with

high barriers scores ($Mdn = 17$) and severity scores ($Mdn = 19$) are less likely to get enough sleep than those with lower scores ($Mdn = 16$ and $Mdn = 18$, respectively). No significant relationship was found between perceived susceptibility and this particular behavior.

Following a healthy and balanced diet. The Mann–Whitney U -test was used to examine the relationship between each subscale of the HBM and the preventive MERS-CoV measure of following a healthy and balanced diet. A significant relationship was found for the perceived severity, $U = 33,935.0$, $Z = -1.960$, $p < .05$, and perceived barriers, $U = 30,888.0$, $Z = -3.602$, $p < .001$. Respondents with higher severity scores ($Mdn = 18$) were more likely to follow a healthy and balanced diet than those with lower scores ($Mdn = 17$), whereas those with higher barriers scores were less likely to follow a healthy diet ($Mdn = 16$). The relationship between susceptibility and a healthy and balanced diet is not significant.

Covering the mouth or using a tissue when coughing or sneezing. The Mann–Whitney U -test indicated that there is a significant relationship between perceived benefits and the preventive measure of covering the mouth or using a tissue when coughing or sneezing, $U = 10,754.5$, $Z = -4.785$, $p < .001$. Respondents with high perceived benefits scores ($Mdn = 27$) are more likely to cover their mouths when sneezing than those with lower scores ($Mdn = 25$). The Mann–Whitney U -test also showed a relationship between perceived barriers and the preventive measure of covering the mouth when sneezing, $U = 11,727.0$, $Z = -3.993$, $p < .001$. Those with high barriers scores ($Mdn = 19$) are less likely to cover their mouths when sneezing than respondents with lower barriers scores ($Mdn = 16$). However, the Mann–Whitney U -test indicated that neither perceived susceptibility nor perceived severity is significantly related with covering the mouth when sneezing or coughing.

Taking time to exercise weekly. The data for the individuals' HBM subscales were analyzed using the Spearman correlation coefficient. Results indicate significant relationships between perceived severity, $p < .01$, perceived benefits, $p < .01$, perceived barriers, $p < .01$, and the preventive measure of exercise. Perceived severity and perceived barriers were negatively correlated with time spent on exercise. In contrast, perceived benefits was positively correlated with time devoted to

exercise every week. The relationship between perceived susceptibility, $p = .279$, and time spent on exercising was not significant.

Research Question 3

Frequency of handwashing. Respondents were asked about the frequency of daily handwashing. The data for the individuals' HBM subscales were analyzed using the Spearman correlation coefficient. The results show that cues to action, $p < .001$, $\rho = .190$, and self-efficacy, $p < .01$, $\rho = .145$, are positively correlated with the preventive measure of handwashing. Respondents with higher cues to action and self-efficacy scores are more likely to wash their hands than respondents with lower scores.

Wearing a mask when visiting sick people. Respondents who said they visited sick people were asked if they wore a mask. The nonparametric Kruskal–Wallis test indicated that cues to action, $\chi^2(2, N = 552) = 35.698$, $p < .001$, and self-efficacy, $\chi^2(2, N = 552) = 38.884$, $p < .001$, are significantly related to the preventive measure of wearing a mask when visiting sick people. The data show that people with higher cues to action scores ($Mdn = 36$) are more likely to adhere to this behavior than those with lower scores ($Mdn = 32$) or those who do not visit sick people ($Mdn = 33$). The results also show that respondents with higher self-efficacy scores ($Mdn = 39$) are more likely to wear a mask than those with lower scores ($Mdn = 35$).

Staying away from camels. Respondents were asked if they kept away from camels. The Mann–Whitney U -test indicated that cues to action, $U = 10,652.0$, $Z = -2.336$, $p < .05$, and self-efficacy, $U = 7,620.0$, $Z = -5.088$, $p < .001$, are significantly related with this preventive measure. Respondents with higher cues to action scores ($Mdn = 33$) are more likely to keep away from camels than those with lower scores ($Mdn = 32$); however, respondents with higher self-efficacy scores ($Mdn = 36$) are less likely to follow this preventive measure than those with lower scores ($Mdn = 33$).

Getting enough sleep. Participants were asked if they get enough sleep every day. The Mann–Whitney U -test was used to examine the association between each subscale of the HBM and the preventive MERS-CoV measure of getting enough sleep. The study indicates

significant relationships between cues to action, $U = 26,772.0$, $Z = -3.878$, $p < .001$, and self-efficacy, $U = 28,106.0$, $Z = -3.117$, $p < .01$, and getting enough sleep. Respondents with high cues to action scores ($Mdn = 33$) are more likely to get enough sleep than respondents with lower scores ($Mdn = 32$). Respondents with high self-efficacy scores ($Mdn = 36$) are more likely to get enough sleep than those with lower scores ($Mdn = 35$).

Following a healthy and balanced diet. The Mann–Whitney U -test was used to examine the relationship between cues to action, self-efficacy, and the preventive MERS-CoV measure of following a healthy and balanced diet. A significant relationship was found for the perceived cues to action, $U = 22,755.0$, $Z = -7.987$, $p < .001$, and self-efficacy, $U = 28,228.0$, $Z = -5.036$, $p < .001$. Respondents with higher cues to action scores ($Mdn = 35$) are more likely to follow healthy and balanced diets than those with lower scores ($Mdn = 31.5$). Also, respondents with higher self-efficacy scores ($Mdn = 37$) are more likely to follow healthy and balanced diets than respondents with lower scores ($Mdn = 36$).

Covering the mouth or using a tissue when coughing or sneezing. The Mann–Whitney U -test indicated that there is a significant relationship between perceived cues to action and the preventive measure of covering the mouth or using a tissue when coughing or sneezing, $U = 12,067.5$, $Z = -3.719$, $p < .001$. Respondents with high cues to action scores ($Mdn = 33$) are more likely to cover their mouths when sneezing than those with lower scores ($Mdn = 30$). The Mann–Whitney U -test also shows a positive correlation between self-efficacy and the preventive measure of covering the mouth when sneezing, $U = 11,018.5$, $Z = -4.566$, $p < .001$. Those with higher self-efficacy scores ($Mdn = 36$) are more likely to cover their mouths when sneezing than respondents with lower scores ($Mdn = 33$).

Taking time to exercise weekly. The data for both cues to action and self-efficacy scales were analyzed using the Spearman correlation coefficient. The data show significant relationships between cues to action, $p < .001$, $\rho = .240$, and the time devoted to exercising every week. The data also show that self-efficacy, $p < .01$, $\rho = .122$, also is positively correlated with time devoted to exercising every week.

Discussion

MOH as a Credible Source

The results show that the MOH website and social media are likely places for Saudi people to seek information on MERS-CoV, after Internet searches. Physicians ranked third. Interestingly, although physicians ranked third for *seeking* information, they ranked sixth as most *credible* source. The MOH website ranked first as the most credible source for MERS-CoV information, followed by the WHO, the MOH's Twitter page, the CDC, the MOH's YouTube channel, and doctors and health care providers. This finding is compatible with the report recently released by the Saudi online newspaper *Makkah*, which stated that the MERS-CoV topic was among the most searched on the MOH's website ("Seasonal Influenza," 2017). This may indicate that the MOH was able to regain trust when it implemented strategic communication during the "We Can Stop It" campaign, thus showing high Web traffic from users searching for MERS-CoV information.

Although these findings indicate that the MOH is seen as a credible source, five credibility measures were applied to better understand if there are differences in believability, accuracy, trustworthiness, being unbiased, and completeness among the 16 communication channels. The MOH website and MOH Twitter account ranked first and second, respectively, for most believable, accurate, and trustworthy. The MOH website also ranked first for most complete information on MERS-CoV.

Perceived Susceptibility and Severity

Only one preventive measure was significantly related to susceptibility. Those who perceived a higher risk of contracting MERS-CoV were more likely to wear a mask and see the benefit of doing so. As part of the campaign, posters depicted people wearing a mask when visiting sick people, thus indicating that this guideline was being followed.

The severity of contracting the virus is positively correlated with handwashing and eating a healthy and balanced diet, meaning the more people perceive they are at risk for contracting MERS-CoV, the more likely they are to wash their hands frequently and eat healthier. Surprisingly, wearing a mask, getting enough sleep, and getting enough

exercise are negatively correlated. This means that although people perceive the severity of contracting MERS-CoV as being great, they have not been influenced to get more sleep or exercise, eat a healthier diet, or wear a mask when visiting sick people. Perhaps this disconnect is due to a mentality of believing that they will not get sick, or perhaps they have not yet encountered anyone with the virus. This warrants a second phase of this campaign, which should focus on susceptibility to the disease. Campaign messages based on Ajzen and Fishbein's (1980) theory of reasoned action could be useful in moving people toward practicing the MOH's recommended preventive behaviors (Ajzen, 2012).

Perceived Benefits and Barriers

Five preventive measures were associated with benefits of practicing the behaviors. These were wearing a mask when visiting sick people, staying away from camels, getting enough sleep, getting enough exercise, and covering the mouth or using a tissue when coughing or sneezing. Key campaign messages providing step-by-step guidance through verbal and visual methods may have contributed to these healthy practices. Interestingly, the practices of frequent handwashing and eating a healthy and balanced diet were not significant.

Not surprisingly, if barriers to practicing these recommendations are high, people are less likely to practice them. This is the case for washing hands frequently, staying away from camels, getting enough sleep and exercise, eating a healthy and balanced diet, and covering the mouth or using a tissue when coughing or sneezing. Several explanations can be offered here. For camel herders, it is not possible to stay away from camels—their livelihood. If people are working long hours at a job and/or tending to family needs, sleep and exercise may suffer. If people do not have access to a tissue, they may cough or sneeze into their hands, which is an unsanitary practice. Decreasing barriers to practice is probably the greatest challenge this campaign faces, as many situations, such as being a camel herder or being a working parent, cannot be changed. At the same time, campaign messages should continue to remind people to practice these healthy behaviors when possible.

Interestingly, wearing a mask when visiting sick people is seen

as a barrier, yet people are also more likely to practice this behavior. This is the only barrier that respondents say they are willing or able to overcome, meaning practicing this behavior is important to them in preventing the spread of MERS-CoV.

Cues to Action and Self-Efficacy

Respondents with higher cues to action, both external and internal, are more likely to perform all of the recommended preventive guidelines than those with lower scores. These included washing hands frequently, staying away from camels, getting enough sleep, getting enough exercise, eating a healthy and balanced diet, and covering the mouth or using a tissue when coughing or sneezing.

External cues are those factors that trigger people to change their behavior and may include events, people, mass media, and health providers, among other factors. Internal cues include psychological cues, such as pain and symptoms that trigger individuals to adopt a new behavior. It is reasonable to argue that, to some extent, the external cues the “We Can Stop It” campaign provided contributed to the practice of the behaviors. It is also reasonable to argue that many health providers adopted the MOH guidelines and that use of traditional and social media helped moved the campaign messages into the public sphere.

Self-efficacy was positively correlated with five of the six recommended preventive guidelines; that is, Saudi people are more likely to wash their hands frequently, get enough sleep, get enough exercise, eat a healthy and balanced diet, and cover the mouth or use a tissue when coughing or sneezing if they have higher levels of self-efficacy. The campaign messages teach people how to perform a new behavior and stress that they have the ability and capability to make change. The more people believe in their ability and skill to achieve a certain goal, the more likely they will be to attain that goal. Key campaign messages may have contributed to providing the self-efficacy people needed to perform these behaviors.

Self-efficacy was negatively correlated with staying away from camels. This makes sense in that those who work with or around camels would not have the ability to stay away from them.

Overall Impact

In the “We Can Stop It” campaign, two-way communication replaced the MOH’s one-way model of communicating during the megacrisis of the initial MERS-CoV outbreak. Although no benchmark study is available with which to assess credibility levels of the MOH at the beginning of the crisis, media coverage, public outrage on social media, and the firing of the minister of health all pointed to failures to communicate effectively. Since launching the “We Can Stop It” campaign, the MOH has become the first place Saudis go to seek information on MERS-CoV, after Internet search engines. This is consistent with Fox and Duggan’s (2013) study that found that the majority of Internet users in the United States go first to the Internet search engines, such as Google and Yahoo!, to seek health information. Ranking the MOH as the first place to seek MERS-CoV information after the Internet search engines also is consistent with crisis communication guidelines in which an organization should position itself as the main source of information to tell its side of the story during a crisis (Coombs, 2014). Being the main source of information during a crisis ensures that an organization will be in charge of handling the flow of accurate information (Coombs, 2007). The MOH, in fact, declares its website to be the main hub for MERS-CoV information. Furthermore, the study found that the MOH’s website is seen as the most credible source of information among 15 other communication channels, including international organizations. This success could partially be attributed to the implementation of a strategic communication plan and effective policy that emphasizes transparency, accountability, accuracy, and engagement with the public, as seen in the “We Can Stop It” campaign.

The study also found that the majority of participants are more likely to use social media to seek information about MERS-CoV than traditional media. This is consistent with the Pew Research (2016) findings that traditional media in the United States are witnessing a dramatic decrease in use among younger generations, especially newspapers. Those aged between 18 and 29 years, the primary demographic of this study, depend less on traditional media for information than any other age group. This age group is more likely to use digital media, apps, and social networking sites to seek information, according to the Pew

research report. The emphasis on social media, especially Twitter, has allowed the public to be more interactive with the MOH. For example, the MOH tweets weekly updates on new cases and provides specific tips on how to avoid the virus. People are then encouraged to retweet these health messages, providing others with consistent, accurate, and timely updates. With approximately 8.5 million followers, the MOH Twitter site has proven to be an effective two-way communication tool. What has shown to be the least effective of MOH's communication tools is its Facebook page, which ranked lowest of all the MOH's communication channels. Facebook, in general, ranked low on all measures of credibility, indicating that Facebook is not the strongest or best method to reach Saudi people with pertinent health information.

Regarding campaign messages, participants who had high scores on the HBM five dimensions (susceptibility, severity, benefits, cues to action, and self-efficacy) were more likely to comply with the MOH's guidelines and instructions. For instance, people with higher self-efficacy, cues to action, and perceived severity were more likely to wash their hands than those with lower scores. Respondents with high HBM scores were more likely to wear a mask when visiting sick people. Such findings are consistent with Champion's (1990) correlations between high HBM scores and the frequency of breast self-examination.

The study also found that respondents with high barriers scores are less likely to follow the MOH's MERS-CoV preventive measures, hence the importance of reducing these barriers by addressing the challenges and obstacles that prevent Saudis from performing the MOH's recommended behaviors. Further studies could help the MOH better understand what people need to overcome the barriers and then provide effective communication strategies to address these needs.

The study showed that Saudis have the self-efficacy to follow the campaign's recommendations, except for staying away from camels. This shows the importance of campaigns providing the necessary tools to change a behavior.

Limitations

This study had three limitations. The first was the use of a convenience sample. Although a convenience sample is less expensive than other

types of sampling, it can provide useful information for researchers in a short period of time (Wimmer & Dominick, 2011). Cost was the prohibitive factor in gaining a sample from the larger population. The second limitation was the use of college students as the unit of analysis. It is worth noting, however, that KSU is located in Riyadh, the city with the largest number of MERS-CoV cases. It is the largest university in the country and hosts both domestic students from various regions and international students. Third, nonresponse bias was another limitation of this study. Although the e-mail invitation to participate in this study was sent to all KSU students, only 875 participated in the study, leaving a large number of KSU students who might carry different perspectives about the topic under study. Fourth, the study did not include baseline data or a control group to assess the credibility of the MOH's MERS-CoV messages; rather, it relied on participant self-report after the MERS-CoV crisis.

Finally, we recognize that people may have been practicing preventive behaviors before the campaign or are practicing them without having been exposed to the campaign; however, we assert that the MOH's strong credibility has positively influenced attitudes and behaviors in following preventive recommendations.

Conclusion

The results from this study indicate that the MOH has gained credibility since hiring a new minister of health and launching the "We Can Stop It" campaign. The results further illustrate that the campaign is having a positive impact in that the majority of participants are practicing most, but not all, of the preventive guidelines set forth in the campaign. Campaign planners facing megacrises can learn from this study how best to develop effective campaigns. The first step is to be sure that the organization's key constituents see it as credible. The second step is to provide a strong theoretical framework from which to develop the campaign. Finally, campaigns that address perceived susceptibility and severity of contracting a deadly virus and that identify perceived benefits of and barriers to practicing recommended preventive health guidelines are more likely to be successful.

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Expressing Opinions About the Refugee Crisis in Europe: The Spiral of Silence and Crisis Communication

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ABSTRACT

Framing of crisis events is to a large extent contested, with multiple sources and conflicting messages. Theories of crisis communication acknowledge how people try to deal with these competing messages, and this article seeks to deepen the understanding the process of sense making of crisis events by connecting crisis communication to the spiral of silence theory. The spiral of silence theory, founded by Elisabeth Noelle-Neuman, proposes that people are less willing to express their opinions if they believe their beliefs are shared by a minority. This will lead to a spiral in which those who feel their opinions are popular are more inclined to express their opinions, and those who perceive their opinions are unpopular among the public become more silent. This study analyzed changes over time in the willingness to express opinions about the refugee crisis in Europe using a two-wave Web-panel survey ($N = 1,185$) in Sweden in 2015–2016. The focus is the impact of changing government policy, which moved from a generous refugee policy toward a more restrictive policy. Changes toward a more restrictive refugee policy did not seem to change the overall picture. Those supporting a more restrictive policy were still less inclined to speak their true opinions about the refugee crisis, even if the policy had changed in their favor. On the other hand, respondents supporting a more generous refugee policy seemed to become more cautious about expressing their opinions about the refugee crisis after the policy change, especially when talking to strangers.

KEYWORDS: Spiral of silence; crisis communication; opinion change; refugee crisis; interpersonal communication

Framing of crisis events is to a large extent contested (Boin, t'Hart, & McConnell, 2009; Frandsen & Johansen, 2017; Seeger & Sellnow, 2016). Even if risk and crisis communication research largely focus on how to create best practices for designing and disseminating crisis communications and reaching a common public understanding of

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crisis situations, it is also pointed out that crisis events take place in situations of framing contest (Frandsen & Johansen, 2017; Heath & O'Hair, 2010; Seeger & Sellnow, 2016). Questions of contest can be, Is there actually a crisis going on? Who is responsible for the upcoming situation? How can it be solved? What is the proper way of dealing with the crises? These questions will be addressed by decision makers, organizations, news media, and citizens, and crisis decisions are thus made in an environment of competing messages (Boin, t'Hart, Stern, & Sundelius, 2005).

When discussing citizens' perceptions of crisis events, we have to consider how this frame contest affects the sense making of a crisis. Risk and crisis communication has shown how people use different strategies to make sense of an uncertain situation (Sellnow & Seeger, 2013; Vigsø & Odén, 2016). One example of these strategies is convergence theory, which focuses on the ways in which individuals make sense of competing information by collecting and contemplating information from different sources and discussing this information with family, friends, and neighbors (Anthony, Sellnow, & Millner, 2013; Sellnow, Ulmer, Seeger, & Littlefield, 2009). However, one possible problem with the process of sense making might be that all these communication opportunities are not always at hand. In crises with competing frames, people might not always be comfortable expressing what they really think about different aspects of the crisis. Some speak out and discuss controversial issues with their families, friends at work, or even people they do not know. Others stay silent and are afraid to let others know what they really think about the issue at hand.

This article seeks to deepen the understanding the process of sense making of crisis events by connecting crisis communication to the spiral of silence theory. Even if theories of crisis communication acknowledge that people try to deal with competing messages, it has not taken into consideration the social dynamics of the sense-making process. The spiral of silence might be a way to further understand how people react to and communicate in times of crisis.

Literature Review

The Spiral of Silence

The *spiral of silence* theory proposes that people are less willing to express their opinions when they believe their beliefs are shared by a minority (Noelle-Neuman, 1984). We are sensitive to our surrounding social environment and will not speak out if we fear becoming socially isolated. This will lead to a spiral in which those who feel their opinions are popular are more inclined to express their opinions and those who perceive their opinions are unpopular among the public become more silent.

The spiral of silence is seen as one of the most influential theories of communication and political communication over the last half-century (Donsbach, Salmon, & Tsifti, 2016) and has been tested in numerous studies. The general conclusion of meta-analyses shows a general but weak relationship between the perceived opinion climate and respondents' willingness to express their opinions (Glynn, Hayes, & Shanahan, 1997; Glynn & Hoge, 2016).

But the theory has been criticized and studies have been contested for a number of reasons. The spiral of silence theory is so complex and contains so many assumptions that the whole theory has never been (and probably never will be) comprehensively tested (Matthes & Hayes, 2016). Scholars have, over the years, separated the model into manageable parts, but still, after almost 40 years of research, we find research criticizing everything from the assumptions and the generalizability to the design and how to measure key concepts of the theory (Hayes, 2007; Matthes & Hayes, 2016; Neuwirth, Frederick, & Mayo, 2007).

One major critical point in previous research is how research has failed to capture the dynamics of the theory. As Matthes and Hayes (2016) argued, research has neglected to observe the spiral in the theory because of improper research design. Most studies use cross-sectional data or aggregate data; the former can only capture a frozen moment of the phenomena, and the latter have an ecology fallacy problem (Matthes & Hayes, 2016). Whether people actually change their willingness to speak out because of the opinion climate is, to a large extent, still unknown.

As stated previously, the general aim of this article is to use the spiral of silence in studying crisis communication, but the purpose is also to deepen the knowledge of the dynamics of the spiral of silence theory. Therefore this work builds on panel data from Sweden in 2015 and 2016 in which respondents were asked questions about their willingness to express their opinions about the refugee crisis in Europe.

The Swedish government changed its refugee policy from an “open-door policy” to one of the most restrictive in Europe in late fall 2015 (Ghersetti & Odén, *in press*).¹ Because of the policy change, we are able to measure people’s readiness to share opinions about the refugee crisis just before the policy changed and after the change was made. This makes it possible to evaluate whether respondents changed their willingness to speak out when the opinion climate changed.

By studying the refugee crisis, the study also fulfills one of the important assumptions of the spiral of silence—the requirement of a value-laden issue. Immigration and refugees have a strong moral component and are controversial and therefore in line with Noelle-Neuman’s argument that it is only from a moral or normative element that one can fear the threat of isolation (Gearhart & Zhang, 2015; Noelle-Neuman, 1984; Scheufele & Moy, 2000). This will of course also be a good example of an issue where there are competing frames and opinions. The empirical aim is therefore to analyze to what extent individuals change their willingness to express their opinions when government policy concerning a value-laden issue changes.

The organization of the article is as follows. The next section reviews the key assumptions and results of spiral of silence research. This framework is used in more detail to discuss some shortcomings and criticisms of spiral of silence research. On the basis of previous findings, a number of hypotheses are proposed, and thereafter the methodology and measures used in the study are described. After presenting the results, the article ends with conclusions, a discussion of the limitations of the study, and implications of the results for crisis communication.

The Spiral of Silence: Theory and Previous Findings

One of the important needs of the spiral of silence theory is a value-laden issue. As said earlier, fear of isolation is only relevant when the question

at hand is controversial. In spiral of silence research, immigration is categorized as a transitory issue (Gearhart & Zhang, 2015). Transitory issues are not constantly in the public eye but reemerge from time to time. The issue salience of immigration has increased during the last decade in Sweden and Europe in general (Green-Pedersen & Krogstrup, 2008). Immigration in 2015 was, for the first time, viewed as the most important societal issue among Swedish citizens (53% mentioned immigration as an important societal issue; Ohlsson, Ekengren, & Solevid, 2016), and immigration was also the most prominent issue during the 2014 election campaign in the news media (Johansson, 2017). Analyses of the news media content of the election also indicates a strong focus on immigration, and the refugee crisis was the dominant news story during fall 2015 (Ghersetti & Odén, in press).

Some studies of the spiral of silence have focused on immigration to test the theory. Matthes, Morrison, and Schemer (2010) analyzed the national referendum about the naturalization of Swiss immigrants. The results provided empirical support because those perceived as being a minority expressed their opinions to a lesser extent. This tendency was especially prevalent among those who were less convinced of their opinions. Similar empirical support was also found in a study using Asian immigration to Australia as a case (Louis, Duck, Terry, & Lalonde, 2010). Gearhart and Zhang (2015) also included a question on immigration (if undocumented immigrants should have the opportunity to receive permanent residency) when testing different types of issues and the spiral of silence theory. The authors found robust support for the spiral of silence theory related to both immigration and the other investigated issues (abortion and gay marriage).

A recurrent criticism of spiral of silence research is the lack of longitudinal studies. In most cases, research uses cross-sectional data and can only, as Matthes and Hayes (2016) put it, analyze the *social conformity hypothesis*. Cross-sectional data measure at a single moment the difference between respondents expressing their opinions and those being silent. However, this does not capture the dynamics of opinion change, which is one of the central aspects of the theory. To investigate if the opinion climate leads to changes in the willingness to speak out (the change hypothesis), studies over time are needed. Noelle-Neuman

(1984) used trend survey data to demonstrate how aggregate opinions increased or decreased depending on the opinion climate. As Matthes and Hayes (2016) noted, this might give an intuitive understanding of the phenomenon, but it is not a proper way to study changes on an individual level and might also suffer from ecology fallacy. Trend survey data are therefore not appropriate to study the dynamics of the spiral of silence theory. A few studies have used panel data. Shamir (1997) used a two-wave panel to investigate the spiral of silence and climate change, and McDonald, Glynn, Kim, and Ostman (2001) used a four-wave panel from 1948 and conducted a secondary analysis on opinion climate and candidate preference.

The asylum regime in Sweden has been generous and sometimes described as an “open-door policy” (Ghersetti & Odén, *in press*). The policy had broad support among the political parties, and only the nationalist-populist Swedish Democrats (13% in the 2014 general election) opposed the policy. It should also be noted that Swedes are more open to immigrants and welcoming refugees compared to citizens in the rest of Europe (Sides & Citrin, 2007).

The refugee situation escalated during fall 2015, when 10,000 refugees arrived in Sweden every week and Migration Agency of Sweden estimates claimed that 190,000 would seek asylum in Sweden in 2015 (in reality, it was 162,000).² The Dublin Convention states that refugees should seek protection in the first European Union (EU) land they enter,³ but most EU countries let refugees move to other countries. Sweden and Germany were considered popular because of their generous refugee policies, but the number of refugees caused strong tensions in the asylum-seeking process in Sweden (and Germany), not least in terms of housing. The Swedish government (a coalition of the Social Democrats and the Green Party), therefore, decided to change the policy, and in November 2015, identity checks were imposed on all modes of transport to Sweden, and the right to bring families to Sweden was severely restricted. In one day, Sweden had changed its refugee policy from being the most generous in the EU to being one of the most restrictive. The only party that opposed the new policy was the Left Party, with less than 10% support (Ghersetti & Odén, *in press*). The refugee situation in Sweden (and Europe) can therefore these years be

described in terms of a crisis as defined by Ulmer, Sellnow, and Seeger (2007): “a specific, unexpected, non-routine event or series of events that creates a high level of uncertainty and a significant or perceived threat to high priority goals” (p. 7).

From what we know from opinion research, we can expect changes in public opinion when policies change. Zaller (1992) discussed the elite dominance in the news and concluded that the public reacts to elite perspectives on information, and even if not everyone changes his or her mind, changes in elite opinions will have a major impact on citizens’ views of societal issues (Zaller, 1992; see also Bennet, 1990; Iyengar & Kinder, 1987). In fall 2015, many political parties abruptly changed their refugee policies. Results also indicate that media coverage also generally follows the framing of the changed policy (Ghersetti & Odén, in press).

Thus, in line with the spiral of silence theory, we would, before the policy change, expect a greater willingness to express opinions about the refugee crisis among respondents supporting a more generous refugee policy compared to those holding a more restrictive view. This scenario would probably change because of the changing policy, and we would expect that those favoring a more restrictive view would be more willing to share their opinions. Following this logic, the respondents supporting a more generous policy would be silenced. The study hypotheses follow:

H1: Opinion congruency in refugee policy between respondents’ opinions and government policy will be positively related to a willingness to express opinions about the refugee crisis.

H2: When government policy changes to a more restrictive refugee policy, respondents supporting a *restrictive* policy will increase their willingness to express their opinions about the refugee crisis.

H3: When government policy changes to a more restrictive refugee policy, respondents supporting a *generous* policy will decrease their willingness to express their opinions about the refugee crisis.

The spiral of silence phenomenon is generally tested on speaking out in front of unknown people (“talking to a stranger on the bus” is often used in survey questions) and is generally believed to be weaker when

it is related to the social groups to which the individual belongs. The fear of isolation tends to be less pronounced when it comes to talking with family, friends, and work colleagues and classmates (Hampton et al., 2014). Against this background, we would expect the willingness to express an opinion about the refugee crisis to be more accepted when it comes to family and friends than other reference groups:

H4: The willingness to express opinions about the refugee crisis will be more accepted when talking to family and friends, compared with work colleagues and classmates and people respondents do not know so well.

Because the elite opinion changed and the news media seemed to report this change without challenging the dominant frame (Ghersetti & Odén, *in press*), the two waves can be viewed as capturing the change in opinion climate on an aggregate level. In this sense, one could argue that the design follows Noelle-Neuman's (1984) original measure of opinion climate, where she emphasized that the opinion climate is about the factual gain or loss of ground among the population, not if the individual also perceives this process. However, in most spiral of silence research, a common way to measure the opinion climate is to ask respondents how they perceive the general opinion position on the issue and compare these answers with their own issue position (Matthes & Hayes, 2016). Even so, there have been many suggestions about how to measure the opinion climate. Some have asked about the opinion among the general public (Shamir, 1997), while others have focused on different reference groups (Moy, Domke, & Stamm, 2001; Oshagan, 1996). An interesting and maybe also troublesome aspect in previous research is the lack of mass media indicators in many studies. Matthes and Hayes (2016) highlighted that only a few studies actually include media content in their analyses and fail to establish a connection between the media content to which respondents are exposed and their perception of the opinion climate. However, there are a few examples of studies where the climate of opinion is measured as seen to be conveyed through the mass media (Matera & Salwen, 1992). To arrive at a more thorough understanding of the processes, the design of this

study also includes an analysis of those respondents who changed their inclination to speak out (see also Gearhart & Zhang, 2015) to evaluate to what extent this disposition may be related not only to the changing opinion climate but also to perceptions of the news media's reporting (media congruency), which can be viewed as a subjective measure of the opinion climate. A proposed research question is as follows:

To what extent can respondents' willingness to express their opinions about the refugee crises be related to media congruency?

Method

To try to overcome some of the critical points referred to earlier, this study of the spiral of silence in crisis events uses (a) a two-wave panel study to be able to investigate changes in willingness to express opinions; (b) analysis of a real-world event—not a hypothetical—which makes the situation more real for respondents (see Hayes, 2007); and, because there was a dramatic change in elite opinion of the refugee issue, where all major parties changed their opinions and decided to change the policy, (c) observations of whether the change of (elite) opinion climate also affects willingness to speak out.

Data Collection

Data for this study were collected in November 2015 (before the policy change) and April 2016 (after the policy change) and were generated by the Laboratory of Opinion Research (Lore) at the University of Gothenburg using a Web survey panel of Swedish citizens. The panel contains both self-recruited respondents (approximately 60,000) and respondents recruited from probability-based population samples (approximately 10,000).⁴

The chosen sample (2,500) was randomly selected from the citizen panel and was stratified to reflect the general population according to gender, age, and education. The first wave of the survey was collected between October 26 and November 5, 2015, with a response rate of 63%. The second wave was sent out to respondents (who answered the first survey) between April 21 and May 3, 2016. The response rate

of the second wave was 71%. In both panel waves, 1,185 respondents answered the questions.

The design using a two-wave panel (i.e., interviewing the same persons two times) enhances the possibility to track individual trajectories over time. It makes it easier to rule out other factors that might affect the results and strengthens claims of causal interpretations (Berrington, Smith, & Sturgis, 2006).

Measures

Willingness to speak out. The criterion variable in this study was measured by three questions capturing different social spheres: (a) family and friends, (b) work colleagues and classmates, and (c) strangers. The following question was posed: “To what extent do you feel you can speak out about the refugee crisis with your family and closest friends?” Respondents were given a 5-point scale on which to place themselves, ranging from 1 (*to a very large extent*) to 5 (*to a very small extent*; Wave 1, $M = 4.56$, $SD = 0.80$; Wave 2, $M = 4.57$, $SD = 0.78$). The same scale was used to ask if respondents were willing to speak out about the refugee crisis with people at work and in school: “To what extent do you feel you can speak out honestly about the refugee crisis with work colleagues and classmates?” (Wave 1, $M = 3.87$, $SD = 1.22$; Wave 2, $M = 3.79$, $SD = 1.21$).

To measure the willingness to speak out in relation to strangers, the third question asked, “To what extent do you feel you can speak honestly about the refugee crisis with people you don’t know well?” Respondents were given a 5-point scale on which to place themselves, ranging from 1 (*to a very large extent*) to 5 (*to a very small extent*; Wave 1, $M = 3.21$, $SD = 1.37$; Wave 2, $M = 3.04$, $SD = 1.38$).

Own opinion. Respondents were asked to express their opinions about the refugee issue by measuring to what extent they would favor a more restrictive, status quo, or generous refugee policy. The question was posed, “How well do the following statements comply with what you think of the refugee reception?” Respondents answered using a 5-point scale to express their opinions about the refugee issue, ranging from 1 (*we should receive far fewer refugees than today*) to 5 (*we should accept far more refugees than today*; Wave 1, $M = 2.77$, $SD = 1.42$; Wave 2, $M = 2.68$,

$SD = 1.43$). The variable was computed as a dichotomous variable in the analysis (restrictive/generous policy opinion). Respondents with the opinion of receiving fewer refugees in both waves and being pleased with the present level in Wave 2 were considered as supporting a restrictive policy. With the same logic, respondents claiming Sweden should accept more refugees in both waves and being content with the present level of refugee reception in Wave 1 were coded as supporting a generous policy. This recoding will of course create a loss of data concerning attitude change, but the rationale is to be able to include those changing their minds due to the policy change.

Perception of media congruency. As pointed out previously, there is a discussion in spiral of silence research about the importance of perceptions of opinion climate. The measure of media congruency (evaluation of news media reporting) is viewed as an alternative way to measure the subjective perception of the opinion climate. Even if this is not a straightforward question of how a respondent's own opinion is related to the general opinion, we know from previous research that people tend to generalize media content to the general view of societal problems and their effect on public opinion (Gunther & Storey, 2003; Perloff, 2015; Schulz & Roessler, 2012). Evaluation of news media reporting can therefore be seen as a proxy for the respondents' views on the opinion climate in society.

The respondents were asked to evaluate the news media reporting of the refugee crisis with the question, "How do you think the news media so far has reported on the refugee situation?" The scale had 7 points, ranging from 1 (*not good at all*) to 7 (*very good*; Wave 1, $M = 4.22$, $SD = 1.48$; Wave 2, $M = 3.89$, $SD = 1.45$).

Noelle-Neuman (1984) raised the question of the importance of personal traits related to the spiral of silence phenomenon (Neuwirth et al., 2007; Scheufele & Moy, 2000). Controlling some of these aspects by inclusion in the analysis were political interest, education, gender, and age.

Political interest. A respondent's political interest was measured by the 4-point-scale question "How interested are you in politics?" ranging from 1 (*great interest*) to 4 (*no interest*). The panel consisted of respondents with a greater interest in politics compared with the general

public ($M = 1.74$, $SD = 0.66$). This is related to the recruitment process and the questions asked in the panel, where societal issues dominated.

Education. In the survey, respondents answered a question about their highest level of education with fixed response alternatives (only elementary school; high school, less than 3 years; high school, 3 years or longer; postsecondary education [not university], less than 3 years; postsecondary education [not university], 3 years or longer; college/university, less than 3 years; college/university, 3 years or longer; PhD). Even if the scale was ordinal, it was treated as interval in the analysis. The sample contained a larger number of people with college/university educations compared to the overall Swedish population ($M = 6.91$, $SD = 1.87$).

Gender. This variable is measured by a self-reported question with three alternatives: woman, man, and other. Only four respondents chose the last option, and they were excluded from the analysis. The sample had a larger proportion of male respondents compared with the general population ($M = 1.52$, $SD = 0.50$).

Age. Age was measured by the panelists' self-reported years of birth. The sample contained respondents aged between 18 and 72 years ($M = 47$, $SD = 13.99$), which means that the sample contained more middle-aged and fewer young (<30 years) and old (>70 years) people compared with the population as a whole.

Results

The results in Table 1 indicate strong support for the proposed difference in the preparedness to give voice to opinions about the refugee crisis dependent on to whom a person talks. Overall, respondents are willing to express their opinions among family and friends, and the policy change did not change this attitude at all (Wave 1, $M = 4.56$; Wave 2, $M = 4.57$). As predicted in H4, respondents are a little less comfortable speaking out on this issue when talking to their colleagues and classmates, and over time, they tend to be less willing to express their opinions (Wave 1, $M = 3.87$; Wave 2, $M = 3.79$). But even after the policy change, a majority feel they can express their opinions when talking to people they meet at work or school.

This tendency is even clearer when asking about talking to people

TABLE 1 *Willingness to Express Opinions About the Refugee Crisis When Talking to Family and Friends, Work Colleagues and Classmates, and People You Do Not Know So Well*

	Wave 1		Wave 2		t	D	Sig
	M	SD	M	SD			
Family and friends ^a	4.56	0.80	4.57	0.78	-0.35	0.01	0.724
Work colleagues and classmates ^b	3.87	1.22	3.79	1.21	2.43	0.07	0.015
People you do not know so well ^c	3.18	1.39	3.03	1.38	4.38	0.13	0.000

^a*n* = 1,124. ^b*n* = 1,110. ^c*n* = 1,123.

respondents do not know so well, both in terms of generally being less willing to speak out and changing toward being more silent after the policy change (Wave 1, $M = 3.18$; Wave 2, $M = 3.03$). On this general level, we therefore discover a significant tendency toward a more silenced public opinion, in terms of being willing to express opinions outside the family setting. Even so, the effect size ($d = .013$, $d = .07$) indicates that the magnitude of the policy change on the willingness to speak opinions in public is rather low. It should also be noted that a majority of all respondents feel they can talk about the refugee crisis even if they talk to people they do not know so well, both before and after the policy change.

But are these tendencies uniform, or do they, as H_1 , H_2 , and H_3 predicted, depend on the opinions about the refugee issue among the respondents? In Table 2, the analysis is separated among those who support a generous and a more restrictive refugee policy.

Moving on to the first (H_1) hypothesis, we expected to find a correlation between supporting the government policy on the refugee issue and a willingness to speak out. However, the results show that those favoring a more generous refugee policy to a larger extent are willing to express their opinions about the refugee crisis, both before and after the policy change (family and friends, $M = 4.86/4.81$; work colleagues and classmates, $M = 4.48/4.30$; people you do not know so well, $M = 3.97/3.68$). The difference compared with respondents favoring a more restrictive policy is significant, where a clear majority instead are less comfortable expressing their opinions (family and friends, $M = 4.33/4.37$; work colleagues and classmates, $M = 3.33/3.37$; people you do not know so well, $M = 2.46/2.46$). On the basis of these two measurement points, it seems like those supporting a more restrictive policy are less likely to express their opinions, even if the policy has changed, favoring their position. H_1 can therefore only be partly supported.

The second (H_2) and third (H_3) hypotheses focused on changes of expressing opinions, not the majority/minority position. H_2 must be rejected because there was no change among those supporting a restrictive policy before and after the policy change, independent of whom they talk to. Even if the policy change supported their opinions, they

TABLE 2 *Willingness to Express Opinions About the Refugee Crisis When Talking to Family and Friends, Work Colleagues and Classmates, and People You Do Not Know So Well by Respondents Supporting a Generous or Restrictive Refugee Policy*

	Wave 1		Wave 2		T	D	Sig.
	M	SD	M	SD			
Generous							
Family and friends ^a	4.86	0.46	4.81	0.51	2.03	0.10	0.043
Work colleagues and classmates ^b	4.48	0.81	4.30	0.96	3.62	0.16	0.000
People you do not know so well ^c	3.97	1.10	3.68	1.21	5.58	0.25	0.000
Restrictive							
Family and friends ^d	4.33	0.94	4.37	0.92	-1.18	0.06	0.24
Work colleagues and classmates ^e	3.33	1.32	3.37	1.27	-0.75	0.04	0.45
People you do not know so well ^d	2.46	1.30	2.46	1.33	-0.04	0.00	0.97

Note. The group categorized as rejecting restrictive refugee policy contains respondents claiming they want Sweden to accept more refugees in both waves and those stressing the present level of refugee reception is acceptable in Wave 1. The group categorized as supporting a restrictive refugee policy contains respondents claiming they want Sweden to accept fewer refugees in both waves and those stressing the present level of refugee reception is acceptable in Wave 2.

^an = 496. ^bn = 491. ^cn = 495. ^dn = 303. ^en = 297.

TABLE 3 *Predictors That Impact the Willingness to Express Opinions About the Refugee Crisis in Conversations with Family and Friends, Work Colleagues and Classmates, and People You Do Not Know So Well*

	Willingness to speak out before policy change	Willingness to speak out after policy change	Decreased willingness to speak out
Family and friends			
Own opinion (generous policy)	.33***	.29***	-.11**
Media congruency	.03	.07*	-.04
Political interest (low)	-.01	-.08**	.06
Education (high)	-.07	-.07*	.00
Gender (woman)	-.07	-.06	.03
Age	.02	.06	-.04
Adjusted R^2 (%)	10	9	1
<i>N</i>	816	818	815
Work colleagues and classmates			
Own opinion (generous policy)	.48***	.43***	-.01
Media congruency	.08*	.12***	.02
Political interest (low)	-.03	-.10**	.08*
Education (high)	-.04	-.10**	.04
Gender (woman)	.01	.02	-.01
Age	.04	.04	.00
Adjusted R^2 (%)	20	12	0
<i>N</i>	815	811	807
People you do not know so well			
Own opinion (generous policy)	.50***	.45***	.12**
Media congruency	.11**	.09*	.05
Political interest (low)	-.04	-.09*	.06
Education (high)	.03	-.05	.02
Gender (woman)	-.02	-.06	-.03
Age	.04	-.01	.08*
Adjusted R^2 (%)	28	19	2
<i>N</i>	816	817	814

Note. Values are ordinary least squares, standardized regression coefficients. The dependent variables are created by computing the variable willingness to speak out in the two waves, where respondents could be more/less willing to speak out. The dichotomized variable for decreased willingness to speak out comprises those less inclined to express their opinions compared with those having the same opinion in both waves and those being more motivated to speak out. The media congruency measure is the absolute difference in opinion about the media reporting and respondents' own issue opinions in both waves. Tests to see if the data met the assumption

of collinearity indicated that multicollinearity was not a concern (values ranging between the four regression models, own opinion, tolerance = .78–.82, $VIF = 1.22$ – 1.28 ; media congruency, tolerance = .85–.90, $VIF = 1.12$ – 1.18 ; political interest, tolerance = .93–.94, $VIF = 1.06$ – 1.07 ; education, tolerance = .90–.91, $VIF = 1.05$ – 1.10 ; gender, tolerance = .88–.89, $VIF = 1.13$; age, tolerance = .95, $VIF = 1.05$ – 1.06).

* $p < .05$. ** $p < .01$. *** $p < .001$.

still felt hesitant to speak out in public about their opinions. Moving on to H_3 , we find clear support for what was expected. Respondents supporting a more generous policy have to some extent been silenced. After the policy change, significantly fewer respondents were willing to express their views on the refugee crisis. This can be found independent of social sphere, even if the tendency is clearly related to social groups outside family and close friends.

To further examine the mechanisms of the spiral of silence, Table 3 shows to what extent changes in the willingness to speak out are related to a person's own opinion and perception of media congruency. We also control the results by demographics, which sometimes are treated as personal traits with a possible influence on willingness to speak out in public.

The results of three regression models are shown in Table 3, where the dependent variable measures respondents' willingness to express their opinions, both at and between the two measurement points. The first two models analyze the data as cross-sectional data to see if media congruency affects the predisposition to speak out before and after the policy change. The last model analyzes changes and whether media congruency has an impact on opinion change (i.e., less willing to express opinions).

In all three social spheres, we find that issue position has an impact on the respondents' willingness to reveal their opinions about the refugee crisis, both before and after the policy change (family and friends, $\beta = .33/.29$; work colleagues and classmates, $\beta = .48/.43$; people you do not know so well, $\beta = .50/.44$). The more a person supports a generous policy, the more willing he or she is to speak out. This is the same tendency we saw in Tables 1 and 2.

Also, media congruency has an impact on the tendency to speak out. Respondents who are more critical toward the media reporting also seem to be less inclined to reveal their opinions. This is found in

all social spheres after the policy change (family and friends, $\beta = .07$; work colleagues and classmates, $\beta = .12$; people you do not know so well, $\beta = .09$). Before the change of policy, the effect of media congruency was significant for talking to people at work and in school, $\beta = .08$, and strangers, $\beta = .11$, but not in discussions among family and friends, $\beta = .03$.

Political interest also affected this opinion, especially after the policy change. Those less interested in politics seem to be more inclined to hide their opinions, independent of whom they talk to (family and friends, $\beta = -.08$; work colleagues and classmates, $\beta = -.10$; people you do not know so well, $\beta = -.09$). The same holds for lower educated respondents, but only when speaking with family members and close friends, $\beta = -.08$, and people at work and in school, $\beta = -.10$.

When analyzing the change of willingness to speak out, the results indicate overall a weak relationship between the proposed variables (i.e., low explained variance). The most important factor is a person's own opinion on the issue, but the effect goes in different directions, depending on social sphere. Among family and friends, we find that supporting a more generous policy does not lead to a decreased inclination to reveal opinions, $\beta = -.11$, but it does so when talking to strangers, $\beta = .12$. Moreover, there seems to be no direct effect on the inclination of changes in speaking out related to how news media performance was evaluated and the respondents' own opinions (media congruency). If someone changed his or her willingness to express his or her views, this change may not be related to the person's perceptions of news media reporting. This does not, of course, rule out a possibility of indirect media impact in line with the spiral of silence theory. As said before, the media effect in the spiral of silence theory might be unconscious.

The other predictors show no significant effect, except that increasingly age seems to be related to less willingness to talk about the refugee issue with strangers. Being a man or a woman, being low or highly educated, or having an interest in politics does not seem to matter.

Discussion

The spiral of silence is one of the most influential media effect theories of the last half-century. Noelle-Neuman's theory on how the media influences people's willingness to speak their minds in public has been subject to many studies all over the world. However, the theory has been criticized in terms of conceptualization (Neuwirth et al., 2007), design (Matthes & Hayes, 2016), and generalization (Scheufele & Moy, 2000).

The present study analyzed changes over time in the willingness to express opinions about the refugee crisis in Europe using a two-wave Web-panel survey in Sweden in 2015–2016. In focus was the impact of the changing government policy, which moved from a generous refugee policy toward a more restrictive policy.

The posed hypotheses had mixed support. Government changes in policy toward a more restrictive refugee policy did not change the overall picture. Those supporting a more restrictive policy were still less inclined to speak their true opinions about the refugee crisis, even if the policy had changed in their favor. On the other hand, respondents supporting a more generous refugee policy seemed to be more cautious about expressing their opinions about the refugee crisis when talking to strangers after the policy change. The tendency to hide opinions about the refugee crisis was stronger when talking to strangers and less pronounced in relation to work colleagues and classmates, and a vast majority felt they could talk about the issue with family and friends.

When analyzing the research question about the extent to which media congruency affects willingness to speak out over time, there was no such influence. It is, however, important to understand the difference between analyzing changes and the situation at a given moment. Media congruency had a clear impact on the willingness to share opinions, both before and after the policy change, but media congruency did not affect changes in preferences to talk about the refugee crisis before and after the policy change.

What might need further discussion in relation to the spiral in the spiral of silence theory is the time lag in the process. Most studies include, in line with Noelle-Neuman's suggestions about capturing dynamics of the opinion climate, measures used to understand

respondents' perceptions of whether their opinions are likely to become majority or minority (Gearhart & Zhang, 2015; Jeffres, Neuendorf, & Atkin, 2010; Noelle-Neuman, 1984). People who feel their opinions are about to reflect the majority position are more inclined to speak out. The change in the predisposition to express opinions on the refugee issue follows this pattern for those rejecting a restrictive policy but not among those supporting a restrictive policy. Five months after the policy change, one could expect that those persons who were more critical about accepting refugees would be more eager to speak out. But according to the results, we do not see this development. In line with what previous research has shown in asking about opinions being on the rise or in decline, we should have seen such a change.

Situational explanations can be proposed to explain this lack of willingness to speak out among those supporting a restrictive refugee policy. Even if the policy has changed, many might still be uncertain if this opinion is shared among the general public, not least because the government made the decision with regret and claimed the restrictive policy was not intended to be permanent. A fear of stigmatization might therefore still be possible. Because the restrictive policy has not changed since April 2016, more measurement points could clarify if there is a time lag in processes of the spiral of silence. Over time, those favoring a more restrictive policy might speak out, but the opinion change process might be slower than 5 months. To further understand the dynamics of the spiral of silence, one might therefore need more measurement points. This also highlights that there might be different dynamics depending on respondents' perceptions of whether they are in a majority or minority position. Regarding the refugee issue, willingness to speak out first changes among those who have the majority position. They feel uncertain and become more silent as the refugee policy changes to a position that is different from their own. Maybe those having the minority position will change, but it will take longer before they dare to speak out. They are not sure this change of policy position will last, and even if there is a change of tone in the news media, reporting the process of experiencing a majority position might take a while.

This might indicate there are different time lags in the spiral of silence dynamics depending on if one is to become part of the majority

or minority opinion. Further research on the spiral of silence would be beneficial to better emphasize the dynamics to be able to understand how the spiral in the spiral of silence actually works. Other shortcomings of the present study can also be discussed. In terms of generalizability, a partly recruited panel of respondents might overestimate the willingness to express opinions. Participating in a panel with surveys predominately about politics will be more attractive to people interested in politics, and dropout from the panel will be higher among those less interested in politics.

Conclusion

Let us at last move back to where we started. What are the consequences for crisis communication and, more specifically, citizens' sense making of a crisis related to the spiral of silence? In the introductory section of this article, concerns were raised about the possible difficulty discussing a controversial issue, such as the refugee crisis, in the sense-making process. Strategies proposed by convergence theory were addressed in terms of how people find and use information from different sources, not least in discussion with other people to handle competing information (Anthony et al., 2013; Sellnow et al., 2009). The present study does not support the raised concerns. It seems like most people are willing to discuss a controversial issue among both family and friends and people with whom they work and go to school. People even dare to expose their opinions about a value-laden issue like the refugee crisis to people they do not know well. Even if there is a tendency toward a more silenced public opinion, it is not alarming when talking to family and friends. So even if there is a spiral of silence, it does not seem to undermine citizens' sense-making processes in times of crisis.

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Notes

1. See <https://www.migrationsverket.se/>
2. <https://www.migrationsverket.se/>
3. See <http://eur-lex.europa.eu>
4. For more information about the panel, see <http://www.lore.gu.se/>

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Responding to Campus Shootings: Two Studies Exploring the Effects of Sex and Placement Strategy on Knowledge Acquisition and Organizational Reputation

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ABSTRACT

Two separate studies used quasi-experimental procedures to examine how college students learn about campus shootings from press releases, television news, or exposure to both. The first study found that women tend to report higher levels of learning than men and that participants generally learn the most when exposed to messages delivered through multiple media. The second study extended the findings to include consideration of the impact of learning on organizational reputation. Taken together, the results of both studies offer further evidence that knowledge acquisition can help mitigate against the formation of negative impressions of an organization in crisis. They also offer that the relationship between learning and attitude formation may be mediated by sex. The results are discussed in terms of message placement strategy and sex differences in mediated learning processes. Implications for the relationship between these learning processes and organizational reputation are addressed.

KEYWORDS: Crisis communication; audience response; stakeholder communication; sex differences; crisis management

U.S. college campuses have seen an array of deadly shootings in recent years (Braggs, 2004; Kaminski, Koons-Witt, Thompson, & Weiss, 2010; McIntyre, Spence, & Lachlan, 2011), including more than 400 active shooter incidents between 1992 and 2015 (Mazer et al., 2015). Such situations

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evoke terror and uncertainty for students, faculty, administration, and the surrounding community. "Right now, I feel helpless. . . . I'm 22 years old and scared to be on a college campus," admitted a Northern Illinois University student when asked for her reaction to the shooting on her campus (Kelleher, 2008, para. 2). In responding to the Virginia Tech shooting, a student remarked, "You would think that a school or even a classroom would be a safe place, but over the past 10 years we have seen otherwise" (Montgomery, 2007, para. 7). Though crisis situations like school shootings often result in human losses and culminate in uncertainty for those associated with the school, organizations in crisis have the ability to foster learning for their publics, facilitate learning as a means to restore their image, and use public-focused learning as a means to grow as an organization. While past studies have relied on exposure to single stimuli or post hoc surveys to assess the impact of campus shooting messages on learning and attitudes (e.g., McIntyre et al., 2011), few have explored the impact of simultaneous stimuli delivered through different media. Furthermore, although sex differences in responses to these messages are articulated in the literature, they have for the most part been omitted from the experimental literature. The two studies herein seek to explain how organizations may create and utilize messages through varying media so that, in times of crisis, the organization is able to reduce uncertainty for stakeholders by providing accurate information. Study 2 also examines the mediating effect of sex on the relationship between knowledge acquisition and attitudes toward the organization.

Campus Shootings

Compared to other crises, little is known about communication processes associated with the crisis life cycle of campus shootings (McIntyre, Spence, & Lachlan, 2011). In particular, there is a gap in our understanding about ideal message placement and the effectiveness of different message placement strategies in engendering learning. Omilion-Hodges and McClane (2015) extended research in this area by examining how university media selection subsequently influenced stakeholders' own choices in message content and media choice for

information dissemination. The authors found that regardless of the initial channel through which they learned of the university crisis, students were able to retain and communicate accurate information regarding the crisis. They were also most likely to utilize a phone call or a text message to immediately connect with others before turning to social media. However, despite the fact that social media is gaining attention in the area of crisis communication and school shootings (Mazer et al., 2015; Omilion-Hodges & McClane, 2015), legacy media are still the dominant source for information concerning most crises and disasters. Because social media often contains misinformation about crises (Lachlan et al., 2014), some organizations are understandably reluctant to adopt it as a tool for crisis communication. Moreover, it may not be an appropriate medium for postcrisis communication, as affected audiences may be more likely to resort to traditional media for expanded coverage and detailed information. It may also be the case that audiences first become aware of a crisis or risk through interpersonal exchanges, then turn to other sources for updates or additional information (see Greenberg, Hofshire, & Lachlan, 2002; Seeger, 2006).

Although college campuses often rely on press coverage and press releases to inform the public, the question remains of which strategy is most effective in engendering learning. The current studies test the effectiveness of three different placement strategies—press release, televised news, and a combination of both—in fostering learning about a campus shooting. Furthermore, given past research suggesting sex differences in informational needs and responses following crises, the current studies investigate whether men and women will differ in terms of which medium fosters the most learning under the circumstances (Nelson, Spence, & Lachlan, 2009; Spence et al., 2006). There is also evidence of sex differences throughout the risk sciences literature. For example, Slovic (1997) and colleagues (Finucane, Slovic, Mertz, Flynn, & Satterfield, 2000) have offered that, on the whole, men tend to perceive risks as less threatening and may form unique opinions or vary in terms of their behavioral intentions. Given documented sex differences in both the communication and risk sciences literatures, Study 2 extends the first investigation to examine the separate and combined effects of

gender and knowledge acquisition on subsequent attitudes toward the organization in question.

Crisis Communication

Broadly, crisis and risk communication can each be considered sub-components of strategic communication, as they are pieces of larger scale communication plans—taking place throughout the crisis life cycle—designed to both deal with negative psychological responses and minimize the harm experienced by those affected. Given the sudden, unexpected nature of campus shootings, response messages are universally tied to the trigger event and acute crisis stage, when it has become clear that something is very wrong and that routine conditions have been cast asunder (see Fink, 1986). Under these conditions, anxiety reduction is paramount, and effective risk and crisis messages satisfy the public's need for control by offering clear, factual information that can be easily retained and acted upon. Crisis messages must detail tangible steps that can be taken by individuals to minimize their susceptibility to risk. Thus there is a critical learning component to successful crisis messages. Inaccurate or incomplete communication of risk will hinder individuals' ability to make good choices in volatile, high-risk circumstances. Of equal importance is message placement: Learning cannot take place if the message does not reach its intended audience (Lachlan & Spence, 2014; Spence, Lachlan, & Burke, 2011). Furthermore, it may be the case that audiences will respond differently to messages delivered in different media formats (see later), thus making placement strategy a critical consideration. Communication efforts during crises and emergencies should facilitate learning on the part of the audience, offering tangible procedural recommendations and other advice (Spence, Lachlan, & Griffen, 2007).

A long history of research suggests that during crises and emergencies, the mass media can be expected to serve as the primary source of information for those affected (Brashers et al., 2000; Burke, Spence, & Lachlan, 2010; Murch, 1971; Spence et al., 2006; Spence et al., 2005). The active process of searching for information through the media will bring about a sense of empowerment and control over the situation, and

knowledge acquisition is remarkably effective in reducing uncertainty under most circumstances (Brashers et al., 2000). Acquiring information from mediated sources sets off several processes (Seeger, Sellnow, & Ulmer, 2003), one of which is observing the behavior of others. For all intents and purposes, this is a type of learning that begets both self-efficacy and the ability to exert some control over the situation. Self-efficacy, as Bandura (1994) noted, can be described as the belief someone has about his or her capability to take an action that provides influence over events that directly affect the person's life. Bandura outlined four main sources of influence; most relevant to this study is the idea that self-efficacy can be achieved through vicarious learning or behavioral modeling. The role and benefits of self-efficacy in the crisis and risk literature are well established (Lachlan, Spence, & Lin, 2013; Neuwirth et al., 2000; Reynolds & Seeger, 2005; D. D. Sellnow & Sellnow, 2014; T. Sellnow & Sellnow, 2010, 2013; Spence, Lachlan, & Griffen, 2007; Spence, Nelson, & Lachlan, 2010; Witte, 1992).

Facilitating self-efficacy is considered an important aspect of numerous functional and theoretical crisis frameworks and is considered a "best practice" in crisis communication (Houston et al., 2015; Seeger, 2006; Veil, Reynolds, Sellnow, & Seeger, 2008). Learning about a crisis can impact an individual's perception of control over the situation and reduce concerns regarding vulnerability (Seeger, 2006). When a disaster peaks, self-efficacy can be enhanced through instructional communication (Frisby, Veil, & Sellnow, 2014; T. Sellnow & Sellnow, 2010), such as a press release or media report. Also, engendering learning can potentially save lives by helping the public manage risk through informed decisions (Reynolds & Seeger, 2005) and stress reduction (Veil, 2007).

When crises present some sort of real and tangible danger, people will seek information in an active and engaged manner (Brashers et al., 2000). While initial alerts may come through interpersonal channels, people typically have a repertoire of trusted sources that they will rely upon for these messages, and they will continue to scan these sources for additional information as the conditions of the crisis change (Lachlan, Spence, & Seeger, 2009). When audiences seek information about crises and initiate learning processes, they often turn to the media (Heath, Liao, & Douglas, 1995; Murch, 1971).

Unfortunately, it may be the case that new media outlets underutilize the opportunity for disseminating information that can engender self-efficacy and maximize positive outcomes, perhaps owing to a lack of solidity in institutional linkages between government organizations and these outlets (see Samarajiva, 2005). Mobilizing information (Lemert, Mitzman, Seither, Cook, & Hackett, 1977)—that which is designed to capitalize on existing schema in terms of threat location, individuals impacted, and tangible steps that can be taken—may be present in less than half of the content concerning these types of events, and online resources may be inclined to use identificational information as opposed to tactical (Tanner, Friedman, Koskan, & Barr, 2009). However, this same research has suggested that when mobilizing information does appear, it is more likely to appear in syndicated and wire stories and is equally likely to appear in print or online (Hoffman, 2006). Thus, if such information is to be found anywhere, it may likely be located in wire stories, such as those generated by the Associated Press (AP), UPI, or Reuters.

Mediated Learning Processes

Mediated learning processes likely occur as a combination of direct instruction and observational, or vicarious, learning. Recent research in observational learning has suggested a biological component to these knowledge acquisition processes, including one that is driven by emotion and other “old-brain” functions (Rizzolatti & Sinigaglia, 2008). This body of research, along with classical social psychology work in vicarious learning, provides both biological and behavioral explanations for learning from media (Nelson et al., 2009). Even in instances in which a person is relatively uninterested in the matter at hand, highly specified learning can still take place (Zukin & Snyder, 1984).

As with all forms of learning, there are likely a myriad of individual-level variables that affect learning about crises and emergencies. Of particular interest is biological sex. Although little research has directly addressed sex differences in mediated learning processes, evidence exists of consistent sex differences in preferred information sources. This research has suggested that women may be drawn to less vivid

media for information, especially information that is particularly sensitive or issue relevant (Jensen, 1988; Keinan, Sadeh, & Rosen, 2003; Morley, 1986).

Furthermore, there is some evidence that women may be better equipped than men to interpret nonverbal cues and may be more reliant on these cues when negotiating interactions (Burgoon & Dillman, 1995). There is also evidence that women may be generally more risk averse than men, relationally oriented, and inclined to seek information related to both emotional needs and mitigation against risk (Burke, Spence, Lachlan, & Seeger, 2008; Lachlan, Spence, & Nelson, 2010; Spence, Lachlan, & Westerman, 2009). If this is the case, then the sexes may be quite different not only in their preferred sources of information but in the observational processes they use to understand, interpret, and retain this information. Differences in preferred media sources and processing style thus necessitate an investigation of the separate and combined impacts of source and biological sex on learning. Furthermore, the preceding arguments force us to consider the role of emotion and arousal in these processes.

Emotion, Arousal, and Mediated Learning

Under conditions of extreme duress, it is typically assumed that mediated information will serve to reduce this anxiety and uncertainty. This is consistent with Weick's (1995) argument that observing the actions of others under the same circumstances can help people make sense of terrifying circumstances to which they have no understanding of how to respond. At the same time, some have argued the opposite: that media exposure may exacerbate these negative psychological responses. Some have presented evidence that repeated exposure to crisis information may itself constitute a traumatic event (Ahern, Galea, Resnick, & Vlahov, 2004) and that repeated exposure to such information may lead to symptoms consistent with posttraumatic stress disorder (Pfefferbaum et al., 2001; Saylor, Cowart, Lipovsky, Jackson, & Finch, 2003).

There may also be a traceable relationship between these strong emotional reactions and learning processes. Zillmann's (1999, 2002) work on exemplification theory, for example, has offered that visual

media rely on highly emotional, arousing images that elicit immediate judgment of issues. In doing so, highly arousing imagery may lead to inaccurate perceptions of likelihood and magnitude of risk, as audiences may be inclined to generalize to entire events from a single image or message (Zillmann, 2002). Evidence of the overestimation of risk under the arousal induced by mediated exemplars is well documented in the literature (Aust & Zillmann, 1996; Zillmann, 2002; Zillmann, Gibson, & Sargent, 1999).

Furthermore, there is evidence that people are inclined to remember general (or “gist”) information after a moderately arousing event but will lose details when pushed to extreme levels of emotional arousal (Zoladz & Diamond, 2008). Because emotional arousal may augment or impair learning depending on the circumstances, past research has not clearly indicated how much people will learn from coverage of a crisis, especially if they are directly affected. Even less clear is the relationship between medium of choice and learning. If we are to assume that television coverage is in itself a traumatic event, as per the arguments of Ahern and colleagues (2004), then it may be the case that those watching televised coverage learn less than those who obtain information through other forms of media, such as official statements or press releases. It may also be the case that when affected publics receive information from both television and other sources, television coverage serves to attenuate the degree of learning experienced by those individuals.

Officials and organizations responding to crises must meet the public’s need for information and initiate learning processes so that those affected can make sound decisions (Omilion-Hodges & McClane, 2015). In fact, recent research (Omilion-Hodges & McClane, 2015) has convincingly argued that organizations in crisis may in fact best meet stakeholders’ need for information by involving them in the information dissemination process. Although television news coverage and official statements are the two venues through which postcrisis messages are typically transmitted under these circumstances, our knowledge of the impact of arousal suggests that other factors may be at play. If television coverage does in fact induce high levels of anxiety, it may be the case that it actually inhibits learning. Moreover, relying

solely on television coverage reduces an organization's ability to frame messages for its stakeholders. As previously noted, past research has provided mixed results in terms of differences between men and women in learning responses. Thus, to inform future message placement strategies under these circumstances, the following research questions (RQs) are posed:

RQ1: Will audiences learn more from emergency information embedded in (a) a press release, (b) a televised news story, or (c) a combination of the two?

RQ2: Will men and women learn more from different sources?

Study 1

To explore these questions, a quasi-experiment was used to determine the effectiveness of different placement strategies in engendering learning. Participants were 180 undergraduate students at a medium-sized university in the Midwest who were randomly assigned to one of three conditions examining postevent communication. In Condition 1, participants were asked to watch a 2-minute AP news feature about a university shooting and to fill out a self-administered survey; AP news features were used given their ecological validity as content in which mobilizing information may be embedded (Hoffman, 2006; see earlier). Condition 2 asked participants to watch the same news feature as in Condition 1, then read an official university press release designed to provide tangible safety measures, followed by a self-administered survey. Condition 3 required participants to fill out a self-administered survey after having only read the press release. The press release restated the facts of the shooting and outlined measures of self-efficacy individuals can take to protect themselves. The news clip included a short message from the university's president explaining safety procedures on campus, followed by faculty members and students explaining if they felt safe or not prior to and following the shooting. The video ended with a narrator explaining the university's capabilities for maintaining safety on campus.

Measures

After viewing the induction, participants were asked to fill out a self-administered survey evaluating their responses to the stimuli. These responses included a series of items measuring learning from the press release and the news clip, adapted from previous research (McIntyre et al., 2012; Nelson et al., 2009). For each medium, respondents were asked if they learned something about their university's emergency response, how people can protect themselves during a shooting, how lockdowns work, how they should respond in a similar situation, more about their personal safety, how they should travel around campus, and how to help others during a shooting; respondents replied on a 5-point Likert scale ranging from 1 (*strongly agree*) to 5 (*strongly disagree*). Items from each of these subscales were averaged to produce a scale for learning from TV ($\alpha = .78$) and learning from the press release ($\alpha = .82$).

Results

The questionnaire included demographic items, including information such as race, gender, and age. Caucasian ($n = 136$, 79.1%) was reported as the highest, followed by African American ($n = 19$, 11%), other ($n = 13$, 7.6%), and, finally, Asian American ($n = 4$, 2.3%). Women ($n = 114$, 63.7%) participated more in this study than men ($n = 65$, 36.3%; $M = 1.64$). A total of 56 participants were assigned to the TV-only condition, 64 were assigned to the combined condition, and 60 were assigned to the press release condition. Participant ages ranged from 18 to 56 years, with a mean of 20.69.

The RQs were examined using a series of *t*-tests. For the first research question, the condition in which participants were administered both the press release and the television news story was used as a comparison group. Against this group, the mean score for learning from the media was compared with the television-only condition. The dependent variable for learning from the press release was evaluated by comparing this group to the press release-only group.

For learning from media, the results indicate that those in the TV-only condition reported less learning ($M = 3.7$, $SD = 0.7$) than those in the combined condition ($M = 3.0$, $SD = 0.8$), $t(114) = 5.34$, $p < .001$. For learning from the press release, those in the press release-only condition

also reported less learning ($M = 2.4$, $SD = 0.5$) than did those in the combined condition ($M = 2.00$, $SD = 0.6$), $t(117) = 3.75$, $p < .001$. As an exploratory analysis, an aggregate measure of learning was computed by taking the mean score across all learning items in the analysis. A one-way analysis of variance (ANOVA) then compared the mean scores across all three conditions. A priori power analysis performed using G*Power (see Faul, Erdfelder, Lang, & Buchner, 2007) demonstrated marginally adequate power for effect sizes as small as .05, $1 - \beta = .77$. The results indicated strong effects for condition on total learning, $F(2, 177) = 32.66$, $p < .001$, $\eta^2 = .54$. Bonferroni post hoc analyses revealed that those in the TV-only condition ($M = 3.7$, $SD = 0.7$) reported learning substantially less than those in the press release ($M = 2.4$, $SD = 0.5$) or combined condition ($M = 2.5$, $SD = 0.5$).

To explore the second research question, a 3×2 ANOVA explored the impact of condition and sex on the aggregate learning measure. Power analysis suggested $1 - \beta = .85$ for each main effect and $1 - \beta = .77$ for the interaction effect between sex and condition. The results indicate main effects for participant sex, $F(1, 178) = 6.57$, $p < .01$, $\eta^2 = .04$, and condition, $F(2, 178) = 98.37$, $p < .001$, $\eta^2 = .53$, but no interaction effect between the two, $F(2, 178) = .735$, $p < .472$, *n.s.* The results of this analysis provide further support for the findings from RQ1. Furthermore, men learned significantly less on the whole ($M = 3.0$, $SD = 0.3$) than did women ($M = 2.8$, $SD = 0.2$).

Study 2

The results of Study 1 offer preliminary insights into the role of message order in the learning processes associated with crises and disasters. They also underscore the importance of providing information concerning organizational response to a developing crisis, in an environment in which the news media will likely paint an unflattering portrait of the organization in question.

Each audience has unique needs for information, while media outlets also have specific agendas after the initial crisis event (Omilion-Hodges & McClane, 2015). In a volatile crisis, immediate and timely information is needed about the event, and the media can become a first source for

what actions to take (McIntyre et al., 2012; Nelson et al., 2009). The literature supports the notion that learning can be fostered at any point throughout the crisis life cycle. When an organization has caused or is perceived to have caused a crisis, it must respond with accounts, excuses, or actions to repair or retain its image (Benoit, 1995, 1997). However, one area that has not received attention is the relationship between an organization's attempt to foster learning in its publics after a crisis and organizational image (public reputation). Unflattering depictions of the organization typically take place in the later stages of an organizational crisis, when the public has developed a more comprehensive understanding of the events that took place and their ramifications for various stakeholders. Study 2, then, attempted to replicate and extend the findings from the first study by fully crossing the design in terms of the presentation of a news feature and press release. Study 2 also sought to examine the subsequent impact of learning on participants' perceptions of the organization. In an attempt to replicate the results of Study 1 and to extend the findings to include consideration of the impact of learning on organizational image, the following hypotheses and RQ are offered:

H1: Participants who are provided a press release from an organization in the aftermath of a crisis will have more positive perceptions of the organization than participants who are not provided a press release.

H2: Participants receiving the press release before watching a news report about a crisis will have more positive perceptions of the organization than those who read the press release after watching the news report.

H3: Women will learn more about the organization regardless of the presence of a press release or order of presentation.

RQ: What is the separate and combined impact of order of presentation and biological sex on learning and perceptions of the organization?

Method

Participants. A total of 203 participants from undergraduate communication courses took part in the current study; students were drawn from the same required course as in Study 1, but more than a year later;

thus it is highly unlikely that any student participated in both. Of the 203 participants, 29.7% ($n = 58$) were men, with 70.3% ($n = 137$) female participants (8 gave no response), with a mean age of 22.89 years ($SD = 5.42$).

Procedure. Participants were provided the study's URL, where they were randomly assigned to one of four conditions examining postevent communication. The intricacies of each condition are described in the following pages; however, participants in each condition completed an identical self-administered survey after being subjected to the stimulus. Participants in Condition 1 watched a 2-minute news feature from the AP about a university shooting, whereas participants in Condition 2 watched the same news feature but also subsequently received a press release that reiterated the facts of the shooting. Additionally, the press release provided tangible safety measures a person could take during campus shootings to protect himself or herself and increase his or her self-efficacy. In Condition 3, participants received the press release before watching the news feature that was utilized in Conditions 1 and 2. In Condition 4, participants were only administered the press release and asked to fill out the questionnaire.

Instrumentation. To examine perceived learning from the AP news feature in Conditions 1, 2, and 3, participants were presented with seven Likert-type questions on a 5-point scale ranging from 1 (*strongly agree*) to 5 (*strongly disagree*). Questions included topics asking if respondents learned how to protect themselves, how lockdowns work, how to help others, about personal safety, about campus travel after a shooting, about university emergency response, and how to respond in a similar situation. The questions were also used in Conditions 2, 3, and 4 to obtain data about perceived learning from the university press release. Items from each of these subscales were averaged to produce a scale for learning from TV ($\alpha = .77$) and learning from the press release ($\alpha = .90$).

To examine participants' perceptions of the organization, 12 items were adapted from the Organizational Reputational Scale (Coombs & Holladay, 1996). The items were measured on a 5-point Likert-type scale ranging from 1 (*strongly agree*) to 5 (*strongly disagree*). Items such as "This organization is basically honest" and "I do not trust the organization to tell the truth about this incident" are typical of the scale. Alpha reliabilities for the Organizational Reputational Scale were $\alpha = .81$.

Results

The analyses began with a simple bivariate correlation looking at the relationship between the dependent variables under consideration. The indicator for total knowledge was strongly correlated with attitudes toward the university in the AP news feature, $r = -.190, p < .008$. Given that the knowledge items were reverse scored, this indicated that those who acquired more information tended to hold higher opinions of the university. Next, hierarchical regression analyses were conducted examining the effect of condition on both learning and attitudes toward the institution. A priori power was determined to be $1 - \beta = .73$ for effect sizes of .05. First, participant age, sex, and income were entered on the first block to serve as control variables. Condition was then added to the second predictor block to examine the difference in variance accounted for in the two models.

For aggregated learning, the first predictor block failed to account for a significant proportion of the variance, $F(3, 184) = 1.34, n.s.$ However, adding condition to the second predictor block did produce a significant model, $F(4, 184) = 2.39, p < .04, \Delta R^2 = .03$. Similar results were detected for attitudes toward the university. The first block failed to produce a significant model, $F(3, 184) = 2.20, n.s.$, while adding condition to the predictor block significantly improved the model, $F(4, 184) = 3.50, p < .009, \Delta R^2 = .08$.

Given that the dependent variables were significantly correlated, a multivariate analysis of variance (MANOVA) was then conducted to examine the means for both dependent variables across all four conditions; power analysis indicated $1 - \beta = .73$. While the analysis for learning did not produce significant results, $F(3, 195) = 1.62, n.s.$, the model did account for 3% of the variance and indicates some evidence of linear trend in the data; the least amount of learning was reported in the feature-only condition, $M = 2.42, SD = .743$, followed by those who saw the feature and then read the press release ($M = 2.31, SD = .469$), then those who read the press release before seeing the feature ($M = 2.23, SD = .465$), with the greatest amount of learning taking place in the press release-only condition ($M = 2.155, SD = .581$).

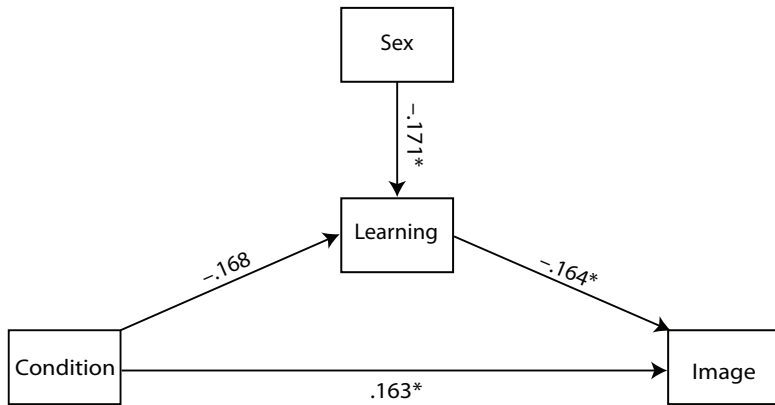
Significant effects were detected for attitudes toward the institution, $F(3, 195) = 2.43, p < .05, \eta^2 = .04$. The pattern of means suggested a pat-

tern consistent with the relationship between knowledge and attitudes. Those in the feature-only condition reported the least positive attitudes toward the institution ($M = 3.35$, $SD = .495$), followed by those who saw the feature and then read the press release ($M = 3.47$, $SD = .422$), then those who read the press release before seeing the feature ($M = 3.53$, $SD = .510$), with the most positive attitudes found in the press release-only condition ($M = 3.64$, $SD = .433$).

Path Analysis

Following the consistency in the findings across both studies, a path analysis was used to investigate the separate and combined effects of presentation order and learning on perceptions of the organization. Given past research indicating that men and women process risk information differently, and that women may be more inclined to experience both empathic responses to risk messages and internalize more information, the indirect effects of gender on organizational image were also included in the model (see Lachlan et al., 2010; McIntyre et al., 2011; Spence, Lachlan, Nelson, & Shelton, 2010; Spence et al., 2009).

Evidence was found to support the proposed model, $CMIN/df = 1.76$, $RMSEA = .06$, $CFI = .91$. Statistically significant paths were detected between experimental condition and learning, $\beta = -.168$, $p < .02$; condition and image, $\beta = .163$, $p < .02$; and learning and image, $\beta = -.142$, $p < .05$. Standardized indirect effects of .03 were detected for both condition and sex on image, mediated by learning. Given the scoring of the indicators, order of presentation led to greater learning about the circumstances surrounding the shooting, and this knowledge was positively related to impressions formed of the institution. Female respondents were more likely to acquire information concerning the shooting, and subsequently, those who did were slightly less likely to form unfavorable opinions about the institution (see Figure 1).



CMIN/df = 1.76

RMSEA = .06

CFI = .910

FIGURE 1 The effects of presentation order and learning on image.

Discussion

Taken together, the results offer some initial insight into both the message placement strategies that may facilitate learning in the aftermath of a crisis and differences between men and women in their learning responses and subsequent assessments of the organization in question. The results are in some ways surprising and in others shed new light on contradictory arguments in the literature.

First, the findings concerning medium and placement shed some light on discrepancies in past research concerning the role of television in mediated learning processes. Although a substantial body of research has suggested that people use the news media to reduce uncertainty following crises, there is also some evidence in the literature that the use of television news in particular may lead to negative emotional and psychological reactions. These negative emotional and psychological reactions, if demonstrated, would logically predict that less learning would take place from television than from other, less vivid media.

The current findings suggest that this may be the case. In both comparative analyses, individual respondents reported more learning

when print press releases and television media were combined than from television alone. In other words, the aggregate presentation of information leads to learning. At the same time, the analyses comparing all conditions in both studies seem to indicate that audiences learned the least in the television-only condition. This would suggest that the television-only condition may be heavy on images and content that participants found to be distressing. In instances in which simple written descriptions were given through a press release, or in which emotionally disturbing video content was accompanied by factual written information, respondents reported learning more. It is worth noting that this finding is largely supportive of the argument that individuals may learn less from television if the graphic and vivid nature of the medium leads to emotional and psychological distress.

If this is the case, the findings from both studies also shed light on the degree of arousal that may be expected by different mediated accounts of a crisis. Because past research has suggested that emotional arousal augments or impairs learning, it may be the case that printed information concerning a crisis of this magnitude is alarming enough; presenting graphic and vivid images of the threatening and uncertain crisis, without complementing them with “cool” media accounts of the events, may lead to an excessive level of arousal that inhibits learning. This would be consistent with the curvilinear relationship between arousal and learning posited by numerous authors (see Zoladz & Diamond, 2008).

The analyses in both studies also shed light on the sex differences, or perhaps lack thereof, that may be expected under the circumstances. The ANOVA analysis for sex and condition in Study 1 revealed strong main effects for both factors but not a significant interaction term between the two. This finding is supported in Study 2, where the path analysis reveals a mediation process whereby women are learning more about the organization and are therefore forming less unfavorable opinions, regardless of condition. This is somewhat consistent with past research indicating that women are prone to seek more information during crises. If this is the case, it may be that women are more prone to actually attend to the information given their standing desire for information on the matter.

What is not consistent with past research, however, is the absence

of an interaction effect between sex and medium. Past research has suggested that women may respond more favorably to less vivid media. This body of research has also suggested that while women place a value on both vivid and nonvivid media, they may be less interested in television news, attend to less television news, and express a preference for other media. In this instance, women were just as likely as men to have learned more from the combined condition. For both sexes, in both sets of analyses, the least amount of learning was reported in the TV-only condition. One explanation for this observation may be that women's desire for information cancels out any differences in medium preference. In other words, if we know that women are more likely to want information, and we know that men prefer vivid media, it may be the case that women's desire for information attenuates any difference in channel preference.

There are limitations with the current studies, as they only explore the responses of men and women to particular media. Radio, e-mail, the Internet, and other media are not considered in the current data. While this decision was made because crisis practitioners typically rely on these specific media when disseminating crisis information, it would be of worth to replicate the study across multiple media to investigate which combination of media makes the most sense in terms of message placement. Furthermore, the studies are confined to news coverage of one particular incident type and were not conducted on the campuses in which the incidents took place. Participants were asked how they would respond under the circumstances but were not actually in the middle of a crisis themselves when responding. Future studies should attempt to gather data from those who have been immediately affected by crisis to shine more light on these mediated learning processes. Nonetheless, the authors would argue that these studies, taken together, are a good first step in evaluating ideal message placement strategy following a crisis and the differences between men and women that may be relevant considerations under the circumstances.

Practical Implications

The current findings also offer practical implications for organizations dealing with crises and, more specifically, for college campuses

preparing for and responding to active shooter incidents. More than anything, they offer empirical support for the long-standing maxim that organizations facing crises need to provide information quickly, not only to ensure the safety of those impacted by the crisis but also to bolster their reputation to the extent possible. The current findings suggest that getting information to the public ahead of some kind of news report may impact both retention of information and attitudes toward the institution. In this sense, organizations in crisis have the ability to frame their messages in the manner of their own choosing, allowing them to play a more active role in shaping stakeholders' understanding of the event and their perception of the organization. Thus organizations in the midst of a crisis may benefit by disseminating quick and accurate information, because this same language is likely to be recycled by the external news media.

In terms of the sex differences reported in the current studies, both crisis communication practitioners and first responders should consider that men are less likely to retain information concerning the event and more likely to form negative opinions regarding the organization. Thus information campaigns and responses may wish to appeal to men in terms of providing information to reduce anxiety, promote learning, and develop a more positive impression of the organization. Audiences will be better able to make rational decisions under equivocal circumstances if they are provided with information and brought around to an appropriate level of arousal and fear (see Lachlan & Spence, 2007, 2009, 2010).

Conclusion

The findings of both studies add some degree of empirical evidence to old public relations maxims that have been followed for decades; as an organization experiencing crisis, it may be best to tell a story before the news media gets a chance to do so, or at the very least, an organization should present its response alongside media reports. The current findings offer evidence not only that this is important but that it may be particularly risky to issue no response at all. These findings are, however, restricted to one particular crisis scenario and explore the

use of ecologically valid, yet situationally specific messages. The extent to which these findings can be replicated to other campus shootings, and across other types of emergencies that take place with little to no warning, remains to be seen. It is also the case that campuses do not respond to emergencies in a vacuum; while the current studies build on previous work by exploring responses to multiple messages, the number of messages and their placement were chosen in an attempt to create easily manipulated quasi-experimental conditions; future studies should vary the number of messages, media, and content characteristics to further explicate these complex processes. Finally, researchers and practitioners alike may wish to consider replicating these findings and extending them to other, less volatile crisis scenarios to examine whether the presentation order and sex differences documented herein replicate across organization, crisis type, and stakeholder group.

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Advocating a New Approach to Governing Water, Energy, and Food Security: Testing the Effects of Message Inoculation and Conclusion Explicitness in the Case of the WEF Nexus

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ABSTRACT

Message sidedness, including its later format inoculation, and conclusion explicitness have been identified by researchers as two prominent message factors that may influence advocating effects. Two-sided messages, which contain both supporting and opposing information about the issue, particularly those containing inoculation components that refute the negative side, are found to be more effective than one-sided messages. Messages with explicit conclusions are also found to be more persuasive than those that let the audience draw the conclusions themselves. This study tested the persuasion effectiveness of message inoculation and conclusion explicitness on a new scientific concept, the water–energy–food (WEF) nexus, of which the public has little knowledge. This study used five randomly assigned groups (total $N = 524$) and found that messages with explicit conclusions are more persuasive than those with implicit conclusions; however, it found no difference between the effectiveness of one-sided messages and of refutational two-sided messages. The study suggests that a clear conclusion is necessary to communicate the WEF nexus for a better approach to managing the megacrisis of water, energy, and food security.

KEYWORDS: Water–energy–food nexus; inoculation theory; conclusion explicitness

The scientific concept of the water–energy–food (WEF) nexus is fairly new. It first emerged in 2011 at the Bonn Nexus Conference, which officially announced water, energy, and food as the three pillars of the nexus (Endo, Tsurita, Burnett, & Orencio, 2017; Hoff, 2011). Following

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the Bonn Conference, the German federal government launched the website Water, Energy, and Food Security Resource Platform.¹ The World Economic Forum's (2011) Water Initiative published a book *Water Security: The Water–Food–Energy–Climate Nexus*. The United Nations and its departments have also adopted the idea quickly. Its Economic and Social Commission for Asia and the Pacific issued the discussion paper “The Status of the Water–Food–Energy Nexus in Asia and the Pacific” (United Nations [UN], 2013b), and its Food and Agriculture Organization published the book *An Innovative Accounting Framework for the Food–Energy–Water Nexus: Application for the MuSIASEM Approach to Three Case Studies* (UN, 2013a) and the report *The Water–Energy–Food Nexus: A New Approach in Support of Food Security and Sustainable Agriculture* (UN, 2014). At the same time, the International Institute for Sustainable Development (IISD, 2013) published a report titled *The Water–Energy–Food Security Nexus: Towards a Practical Planning and Decision-Support Framework for Landscape Investment and Risk Management*. In only a few years, the concept has become central to academic and policy discussions regarding sustainable development and green economy (Biggs et al., 2015).

The idea of the WEF nexus is proposed to solve the conflict between the growth of human population, along with urbanization and globalization, and the constraint of resources. The traditional approach of managing natural resources only focuses on solving crises of a single resource and ignores the possible detrimental effects on other resources. For instance, policy makers favoring the traditional management approach are likely able to foresee that, with the current trend of rapidly increasing demand, global agricultural production will have to increase approximately 70% by 2050, and energy production will need to increase approximately 50% by 2035. However, they may not foresee the impacts of such increases on water resources, land resources, and climate (Hoff, 2011; UN, 2014). They may also fail to take some critical natural resources into policy consideration. Water, for example, received attention in the green economy discussion only a few years before the nexus concept was launched at the Bonn Conference (Endo et al., 2017; Hoff, 2011). In fact, water, energy, and food are intricately linked. Agriculture uses approximately 70% of global freshwater,

food production and transportation account for approximately 30% of global energy consumption, and energy generation also consumes a large share of water (UN, 2014). The nexus approach, with a systematic view that water, energy, and food security are interdependent and not easily disentangled (IISD, 2013), will improve WEF security and ensure a more consistent and coherent governance by identifying and managing trade-offs and building synergies (UN, 2014).

As significant as it may be, the WEF nexus is still unknown to the public and has no fixed interpretation (Endo et al., 2017). This new scientific concept needs to be promoted to the global public so that key stakeholders can be actively engaged in building a policy framework based on the nexus approach (UN, 2014). This study explores the effectiveness of two traditional but understudied message techniques, *inoculation* and *conclusion explicitness*, on audience knowledge, attitude, and behavioral intention toward the WEF nexus. Because the topic is significant but little known to the public, findings of this study can be considered more valid and less influenced by predisposition or other unknown confounding factors.

Literature Review

Many factors, from the details of message components to the sequence of multiple messages, may have a role in constructing a persuasive message (O'Keefe, 2016). Among these factors, message sidedness, from which the inoculation research was developed, and conclusion explicitness were two that received much attention at the milestone Yale Communication and Attitude Change Program presided by social psychologist Carl Hovland (Hovland, Lumsdaine, & Sheffield, 1949; Hovland & Mandell, 1952). They remain intriguing and perplexing aspects of strategic communication research (Belch & Belch, 2012), in part because research has not reached a consensus how these two message factors impact persuasion effects (O'Keefe, 2016).

Message Sidedness and Inoculation

Message sidedness addresses whether the persuasive message contains two sides (both positive and negative sides) or just one side (only the

positive side) of the story. Hovland and colleagues' (1949) pioneer studies in their Yale Project found that two-sided messages were more effective than one-sided messages in changing the attitude of individuals who were initially opposed to the issue. They also found that one-sided messages worked more effectively than two-sided messages with individuals who were already convinced of the position being advocated or with those who were poorly educated.

Many following studies involved two-sided advertising (Crowley & Hoyer, 1994) and found that two-sided ads tend to be viewed as more credible (Eisend, 2006; O'Keefe, 2016; Pechmann, 1992). Even in celebrity-endorsement ads, two-sided ads are deemed to be significantly more credible and effective than their one-sided counterparts (Kamins, Brand, & Hoeke, 1989).

However, conclusions on the effectiveness of two-sided ads vary, which is demonstrated in two frequently cited studies. In one study, Pechmann (1992) found that when the opposing point was important (but less important than the promoting point), two-sided ads for a new brand of ice cream led to better brand evaluation, whereas when the opposing point is perceived as trivial, no difference in brand evaluation is caused by one- or two-sidedness. When the opposing point is negatively correlated with the promoting point, the two-sided ads have the greatest effect. Similar studies have even found that two-sided ads' effectiveness increases with greater consumer exposure (Bohner, Einwiller, Erb, & Siebler, 2003). In another study, however, Crowley and Hoyer (1994) found that for receivers who have a positive preexisting attitude but are aware of the negative information covered in those two-sided ads, the two-sided ads are about as effective as the one-sided ads. If the negative attributes are important to the receivers, the effectiveness of those two-sided ads is lower than it is for their one-sided counterparts.

Inoculation research, first proposed by Hovland's student William McGuire (1961, 1964), studies the persuasive effects of a special type of two-sided messages, in which the opposing points are weakened and refuted to resist future exposure to that type of opposing message (Niederdeppe, Gollust, & Barry, 2014). The persuasion effectiveness of those refutational two-sided messages, according to inoculation researchers (McGuire, 1961; Miller & Levine, 1996), is much stronger than that of

their one-sided counterparts. In the inoculation approach, the message first provides some threatening ideas that are strong enough almost to turn the persuadees against the idea. It then equips them with arguments refuting those threatening ideas and defending the original idea (Dillard, 2010). Inoculation researchers have concluded that, in many cases, no matter whether the threatening ideas are refuted, two-sided messages seem to be more persuasive than one-sided messages. However, they also acknowledge that in some studies, one-sided messages appear to be more persuasive (Szabo & Pfau, 2002).

Several meta-analyses on the effectiveness of one versus two-sided messages have been conducted and have also produced mixed results. Allen (1991) examined 67 experiments and found that when opposing points are raised and refuted (inoculation), two-sided messages are more persuasive than one-sided messages. However, when the opposing points are raised and not refuted, two-sided messages are less persuasive. Eisend (2006) analyzed 34 studies on consumer advertisements from 1960 to 2004 and confirmed that two-sided advertising is generally more effective than one-sided advertising, although the effects are rather small. Such effects of two-sided advertising can be explained by attribution theory, which states that negative information in the messages may cause the audience to perceive the persuaders' motivation to be to tell the truth instead of to make a profit (Burgoon, Pfau, & Birk, 1995; Eisend, 2006).

O'Keefe (2016) has concluded that no persuasive difference exists between one- and two-sided messages based on his own meta-analyses and synthetic literature review. When refutational (inoculation) and nonrefutational two-sided messages are differentiated, consistent with Allen (1991) but contradictory to Hovland et al. (1949), nonrefutational two-sided messages are less persuasive, whereas refutational two-sided (inoculation) messages can be more persuasive compared with their one-sided counterparts (O'Keefe, 2016). Nonrefutational two-sided advertisements, nevertheless, have no difference compared with their one-sided counterparts. O'Keefe also concluded that none of the possible moderating variables identified in previous studies, such as pre-existing attitude, education, or topic involvement, change persuasion effectiveness.

The WEF nexus approach, which scientists and international organizations view as a better concept with which to manage global water, energy, and food security, is relatively new to the public. Compared with other well-known and rather politicalized scientific topics, such as climate change or stem cell research, the WEF nexus rules out predisposition, a critical confounding factor discussed in the literature. Thus, in this study, we aimed to determine if one-sided and refutational two-sided (inoculation) messages have different effects in promoting the WEF nexus.

Message Conclusion Explicitness

Conclusion explicitness research investigates whether messages with explicit conclusions (closed ended) and those with implicit conclusions (open ended) have different persuasion effects. Although terminology may vary in this literature (some studies, such as O'Keefe, 1997, used the terms standpoint explicitness, conclusion articulation, and conclusion specificity), closed-ended messages with explicit conclusions contain a direct statement of a conclusion, whereas open-ended messages with implicit conclusions do not (Martin, Lang, & Wong, 2003). Messages with explicit conclusions generate accurate understanding but may be perceived as threatening or insulting. By contrast, even though messages with implicit conclusions can sometimes generate misunderstanding, they may also be perceived as respectful and inviting and, therefore, as more persuasive (Martin et al., 2003; O'Keefe, 1997).

Hovland also initiated research on conclusion explicitness in his Yale Communication and Attitude Change Program and found that messages with explicit conclusions are more effective in changing audience opinions in the desired direction (Hovland & Mandell, 1952). Later, some researchers found that such differences between closed-ended messages with explicit conclusions and open-ended messages with implicit conclusions were often moderated by variables such as education (intelligence), preexisting attitude, audience involvement in the topic, and the complicity of the topic (Armstrong, 2010; Belch & Belch, 2012). Well-educated or highly ego-involved audiences are more likely to be persuaded by open-ended messages with implicit conclusions, which provide room for them to make up their own minds,

whereas less educated or ego-involved audiences are more prone to closed-ended messages that provide explicit directions (Kardes, 1988; Sawyer & Howard, 1991). If the topics of the messages are too complex, however, even well-educated or highly involved receivers may need assistance and be more persuaded by messages with explicit conclusions (Belch & Belch, 2012). For example, Ahearne, Gruen, and Saxton (2000) found that when the product is complex, such as a CD player, no difference in brand attitude is shown between ads with and without explicit conclusions.

However, again, the findings vary. For instance, Chebat, Charlesbois, and Gelinas-Chebat (2001) found that ads with implicit conclusions generate greater persuasive effects even with low-involvement consumers, as long as those consumers have prior knowledge on the topic. Kardes (1988) found that highly involved consumers exposed to ads with implicit conclusions can generate brand attitude as favorable, as when they are exposed to ads with explicit conclusions, only brand attitudes formed based on ads with implicit conclusions are stronger and more accessible from memory. Other variables, such as the need for cognition and argument quality, have also been identified as moderators of the effectiveness of message conclusion explicitness (Martin et al., 2003).

Even several recent meta-analyses on the role of conclusion explicitness have disagreed with each other. O'Keefe (2016) concluded that little evidence supports the traditionally speculative advantage of messages with implicit conclusions over their counterparts with explicit conclusions. Messages with implicit conclusions are ambiguous and therefore actually encourage receivers to perceive the information as advocating a position either closer (assimilation effect) to or more discrepant (contrast effect) from their position than the messages actually do. In either case, messages with implicit conclusions are less effective than messages with explicit conclusions (O'Keefe, 2016).

Armstrong (2010), nevertheless, believed that O'Keefe's (1997, 2016) conclusion is only valid when no resistance is expected among receivers. When resistance is expected, as in the case of advertising, open-ended messages with implicit conclusions (soft sell) are more advantageous than closed-ended messages with explicit conclusions (hard sell), as traditional advertising wisdom holds. When the audience's freedom

of drawing conclusions is restricted by ads with explicit conclusions, the audience reasserts its original opinion and rejects persuasion (Armstrong, 2010).

Knowledge, Attitude, and Behavioral Intention

Research has shown that persuasion effects take place at different levels. Rogers (2003) described five steps of persuasion effects: knowledge, persuasion, decision, implementation, and confirmation. Knowledge means persuadees' awareness and cognitive understanding of the idea; persuasion means the generation of a (favorable or unfavorable) attitude toward it. On the basis of these two steps, decisions will be made to adopt or reject the idea. If the idea is adopted, actions will then be taken (implementation/confirmation). McGuire (1989) maintained that persuasive information needs to climb up 12 levels, from exposure to postbehavioral consolidation, to go through the whole processing procedure in the audience's mind. It loses about half of its audience advancing each level. But in practice, researchers normally use three levels to summarize those cognitive, affective, and conative levels: knowledge, attitude, and behavior (Xu et al., 2010). Most previous studies on persuasion inoculation and conclusion explicitness have focused on one or two levels of effects. This study measures three levels: knowledge, attitude, and behavioral intention toward the WEF nexus. On the basis of the literature reviewed, we plan to test the following hypotheses:

H1: Subjects exposed to a message about the WEF nexus have a higher level of (a) knowledge, (b) supportive attitude, and (c) supportive behavioral intention toward the nexus approach, compared with those who are exposed to no messages on the nexus.

H2: Refutational two-sided message exposure, compared with one-sided message exposure, is associated with a higher level of (a) knowledge, (b) supportive attitude, and (c) supportive behavioral intention toward the WEF nexus.

H3: Closed-ended message exposure, compared with open-ended message exposure, is associated with a higher level of (a) knowledge, (b) supportive attitude, and (c) supportive behavioral intention toward the WEF nexus.

Method

This study used a 2×2 factorial design with a control group and was administrated through SurveyMonkey.com. Students from a mid-sized southwestern public university were invited to participate through Web links and e-mails. From December 1 to 24, 2016, 625 responses were collected, of which 524 were used, after incomplete or invalid responses were removed. Among the 524 subjects, ages ranged from 18 to 72 years. Freshmen accounted for 19%, sophomores for 16%, juniors for 20%, seniors for 33%, master's students for 5.4%, doctoral students for 2.7%, and all-but-dissertation students for 2.7%.

Procedure

Subjects were invited to SurveyMonkey.com to answer a group of questions, which took about 15 minutes to complete. In the middle of the process, a question with five options was embedded. Four options represented four types of message stimuli; one option had no message and served as the control. The five options were designed to be randomly shown, with equal chance, to the subjects.

The four types of messages as stimuli were refutational two-sided open-ended, refutational two-sided closed-ended, one-sided open-ended, and one-sided closed-ended. All four types were adopted from a short essay on the website of UN Water (n.d.). The essay was about positive evidence supporting the WEF nexus. To produce the two refutational two-sided messages, a paragraph adopted from the UN (2014) was added at the end. The paragraph contained a criticism that the WEF nexus was just "the same old wine in new bottles" (p. 6) and its refutation (inoculation) that the WEF nexus was different from the traditional integrative approaches, which still only explicitly focus on one resource. For the two open-ended messages, the headlines and the ending paragraph both read, "Should we adopt a nexus approach?" For the two closed-ended messages, both the headline and the ending paragraph read, "Let's adopt a nexus approach!"

Subjects could not go back once they passed the page with the stimulus. Among the 524 participants, 111 were exposed to the refutational two-sided open-ended message, 99 to the one-sided open-ended

message, 99 to the refutational two-sided closed-ended message, 104 to the one-sided closed-ended message, and 91 to no message. Twenty subjects withdrew from participation before being exposed to the stimulus. After receiving the stimulus, four groups of questions measuring subjects' knowledge, supportive attitude, supportive behavioral intention to promote the WEF nexus, and general behavioral intention to reduce WEF consumptions in daily life were administered.

Dependent Variables

Knowledge. Five true–false questions based on the messages were used to measure respondents' recall of the information in the message. Answering a question correctly earned 1 point. Thus the index ranged from 0 to 5 ($M = 1.64$, $SD = 1.44$, $\alpha = .63$).

Supportive attitude. Respondents' supportive attitude toward the WEF nexus was measured with an index of six questions, which asked respondents if it was urgent, serious, important, and useful to treat water, energy, and food as a nexus, if the WEF nexus was just another new bottle for old wines in science (reversely coded), and if the respondent was concerned about the WEF nexus. This index ranged from 6 to 30 ($M = 20.41$, $SD = 3.97$, $\alpha = .90$), with higher values standing for higher levels of attitudinal support for the WEF nexus.

Supportive behavioral intention toward the WEF nexus. Respondents' behavioral intention to promote the approach of the WEF nexus was measured with an index of five items. These items asked respondents to rate the likelihood that they would help promote the WEF nexus approach, solve the problems in the nexus, donate to support the nexus approach, tell people about the nexus approach, or urge people to support the nexus approach. The index ranged from 5 to 25 ($M = 14.82$, $SD = 3.52$, $\alpha = .89$). Higher values represented a higher level of behavioral intention to promote the WEF nexus.

The indices of the supportive attitude and behavioral intention were adopted and revised from Gastil and Xenos (2010). To better understand persuasion effectiveness at the behavioral level, the following dependent variable was also measured and analyzed.

Supportive behavioral intention in general. Nine items were used to measure how much the respondents would change their life pattern

to reduce water, energy, and food consumption. The index ranged from 9 to 72 ($M = 39.43$, $SD = 14.27$, $\alpha = .90$). Higher values stand for higher levels of behavioral intention to reduce water, energy, and food consumption in daily life.

Manipulation Check

After being exposed to each type of message or no message, respondents were asked to select if the message (a) provided both positive and negative opinions about the WEF nexus with a clear conclusion, (b) provided just the positive opinions with a clear conclusion, (c) provided both positive and negative opinions with no clear conclusion, (d) provided only positive opinions with no clear conclusion, or (e) was not shown. The actual message types and the subjects' perceptions of the message types were tabulated for a chi-square independent test, $\chi^2(16, N = 524) = 291.0$, $p < .001$. The results of the manipulation check are in Table 1.

In each cell of Table 1, the count and the adjusted standardized residual are reported. Adjusted standardized residuals can be roughly treated as the z -values that help tell if, in the cell, the discrepancy between the count and the expected count is statistically significant. Like z -values, adjusted standardized residuals with an absolute value of 1.96 or higher refer to statistical significance at the 95% confidence level, and absolute values of 2.56 or higher stand for statistical significance

TABLE 1 Manipulation Checks on the Message Sidedness and Conclusiveness

Exposure to/perception of the message	Closed ended/two sided	Closed ended/one sided	Open ended/two sided	Open ended/one sided	No message
Open ended/two sided	18, -0.2	15, -1.3	34, 3.6	24, 1.5	4, -3.9
Open ended/one sided	5, -1.2	11, 1.1	12, 1.3	12, 1.7	0, -3.1
Closed ended/two sided	49, 4.0	49, 3.5	30, -1.5	34, 0.4	3, -6.6
Closed ended/one sided	19, 0.8	22, 1.4	23, 1.4	17, 0.2	2, -4.1
No message	8, -4.1	7, -14.6	12, -3.7	12, -3.1	82, 16.3
Total	99	104	111	99	91

Note. Entries are the counts and the adjusted standardized residuals from a cross-tabulation analysis. The adjusted standardized residuals can be roughly treated as z -values that indicate the statistical significance of the differences between the counts and the expected counts in the cells (Gerstman, 2015). For the overall tabulation, $\chi^2(16, N = 504) = 291.0$, $p < .001$. The two-sided messages contain refutations (inoculations).

at the 99% confidence level. As can be seen in Table 1, subjects who were exposed to the open-ended refutational two-sided message were much more likely to report that the message they read provided both positive and negative opinions with no clear conclusion (counts = 34, adjusted standardized residual = 3.6). Subjects exposed to the closed-ended two-sided message tended to report the message as providing both positive and negative opinions with a clear conclusion (counts = 49, adjusted standardized residual = 4.0). Subjects exposed to the one-sided messages did not report the distinctive message types correctly. However, as O'Keefe (2003) has argued, manipulation checks on message characteristics do not hurt the validity of the stimulus even if they do not fit the expected pattern. A one-sided message is one sided, no matter how the subjects perceive it.

Results

Because the hypotheses involve four dependent variables (knowledge, attitude, behavioral intention toward the WEF nexus, and general behavioral intention toward reducing water, energy, and food consumptions), four one-way analyses of variance (ANOVAs) were conducted to see the differences in the four dependent variables across the five groups. Statistically significant differences exist in knowledge, $F(4, 499) = 14.68, p < .001$; attitude, $F(4, 469) = 2.48, p = .04$; and general behavioral intention, $F(4, 457) = 2.41, p = .049$, but not in behavioral intention toward the WEF nexus, across the five groups. Fisher's least significant difference (LSD) post hoc comparisons further revealed the differences between the groups (Table 2).

H1 hypothesized that reading any version of the message would increase knowledge, supportive attitude, and supportive behavioral intention toward the WEF nexus. The hypothesis was partially supported. As shown in Table 2, the knowledge score of the no-message group was lower than the scores for any of the groups that read a version of the message (Difference_{no message – open-ended two-sided} = $-0.98, p < .001$; Difference_{no message – open-ended one-sided} = $-1.18, p < .001$; Difference_{no message – closed-ended two-sided} = $-1.12, p < .001$; Difference_{no message – closed-ended one-sided} = $-1.37, p < .001$). This significant difference held even

TABLE 2 Difference in Knowledge, Attitude, Behavioral Intention toward the WEF Nexus, and General Behavioral Intention in Water, Energy, and Food Consumptions Across Five Groups

Message version	Knowledge ^a	Attitude ^b	General behavioral intention ^c
A (open ended, two sided)	D = -0.39* E = 0.98***		E = -4.37*
B (open ended, one sided)	E = 1.18***	D = -1.71** E = -1.31*	D = -4.39* E = -5.13*
C (closed ended, two sided)	E = 1.12***		
D (closed ended, one sided)	A = 0.39* E = 1.37***	B = 1.71**	B = 4.39*
E (no message)	A = -0.98*** B = -1.18*** C = -1.12*** D = -1.37***	B = 1.31*	A = 4.37* B = 5.13*

Note. Entries are mean differences generated from Fisher's LSD post hoc tests of the one-way ANOVAs. With the more conservative Scheffe post hoc tests, only the difference of knowledge scores between the no-message group and the message group still holds. The two-sided messages contain refutations (inoculations).

^a $F(4, 499) = 14.68, p < .001$. ^b $F(4, 469) = 2.48, p = .04$. ^c $F(4, 457) = 2.41, p = .049$.

*** $p < .001$. ** $p < .01$. * $p < .05$.

with the more conservative Sheffe's post hoc test, which controls the experiment-wise error rate (Rao, 1998). Meanwhile, the no-message group also had a lower attitude compared with the open-ended one-sided group (Difference_{no message – open-ended one-sided} = -1.37, $p < .001$) and, surprisingly, a higher general behavioral intention than the two open-ended groups (Difference_{no message – open-ended two-sided} = 4.37, $p < .05$; Difference_{no message – open-ended one-sided} = 5.13, $p < .05$).

H2 hypothesized that the refutational two-sided (inoculation) messages, which the audience might perceive as more respectful, were more persuasive than the one-sided messages. That was not supported, as no difference was found between the refutational two-sided groups and the one-sided groups.

H3 predicted that closed-ended messages, with explicit conclusions, would be more persuasive than the open-ended messages with implicit conclusions. This hypothesis was partially supported. The open-ended refutational two-sided group gained less knowledge than the closed-ended one-sided group ($\text{Difference}_{\text{open-ended two-sided} - \text{closed-ended one-sided}} = -0.39, p < .05$). The open-ended one-sided group, compared with the closed-ended one-sided group, had a lower attitude ($\text{Difference}_{\text{open-ended one-sided} - \text{closed-ended one-sided}} = -1.71, p < .01$) and general behavioral intention ($\text{Difference}_{\text{open-ended one-sided} - \text{closed-ended one-sided}} = -4.39, p < .05$). Even compared with the no-message group, although the two open-ended groups increased the knowledge scores, they still showed a lower attitude ($\text{Difference}_{\text{open-ended one-sided} - \text{no message}} = -1.31, p < .05$) and general behavioral intention toward reducing consumption of water, energy, and food ($\text{Difference}_{\text{open-ended two-sided} - \text{no message}} = -4.37, p < .05$; $\text{Difference}_{\text{open-ended one-sided} - \text{no message}} = -5.13, p < .05$).

Discussion

Population growth, urbanization, and globalization, among other factors, are creating drastic burdens on indispensable natural resources, particularly water, energy, and agricultural resources. By 2030, it is estimated that demands for water, energy, and food will increase by 40%, 50%, and 35%, respectively (Endo et al., 2017; Hoff, 2011; U.S. National Intelligence Council, 2012). At the same time, water, energy, and food demands are intricately interwoven, and the concept of the WEF nexus is necessary to capture the complex interrelation of these global resources (UN, 2014). The WEF nexus has emerged as a useful concept that takes a central place in the latest discussion of sustainable development and green economy (Biggs et al., 2015).

At the same time, the concept is unfamiliar to the public. On Google Trend, “water–energy–food” is not even a search term, compared with “water security,” which generates, on average, two searches a day, or “climate change,” which generates, on average, 38 searches a day. In the sample for this study ($N = 524$), on a scale ranging from 1 (*I have never heard about the water–energy–food nexus*) to 10 (*I am very knowledgeable about the water–energy–food nexus*), 75.9% chose 1 and 90.3%

chose 4 or lower. The concept of the WEF nexus enables a better understanding and a systematic analysis of the interactions between the natural environment and human activities as well as more coordinated management and use of natural resources (UN, 2014). It is crucial to promote this concept to the public, because public endorsement is key to adopting policy concepts (Endo et al., 2017). The lack of public knowledge regarding the WEF nexus, on the other hand, makes it an ideal topic to test the functions of message inoculation and conclusion explicitness in the effects of strategic promotions, because it rules out the possible moderation of audience predisposition (Armstrong, 2010; O’Keefe, 2016). Unlike heavily politicized scientific topics, such as climate change, the WEF nexus is essentially unknown and clear of political controversy, which eliminates a multitude of possible confounding factors, including audience predisposition.

This study was designed to test if message inoculation (two sided with refutation vs. one sided) and conclusion explicitness (open ended vs. closed ended) make a difference in knowledge, attitude, and behavioral intention toward the WEF nexus as well as general behavioral intention toward improving water, energy, and food security. The study used an experimental design with five randomly assigned groups: one receiving no message and four each receiving an open-ended refutational two-sided, open-ended one-sided, closed-ended refutational two-sided, and closed-ended one-sided version of the message, respectively.

As a major point of interest, the data of this study suggest, consistent with O’Keefe (2016) but in contrast to Armstrong (2010) and Belch and Belch (2012), that closed-ended messages with explicit conclusions are more effective in generating desirable results in audience knowledge and attitude toward the WEF nexus as well as the general behavioral intention toward lowering water, energy, and food consumption. Although people tend to think that recognizing an audience’s freedom of thinking by providing room for the audience to reach a conclusion themselves may persuade more effectively, it is clear from the evidence generated in this study that messages with an explicit conclusion are more persuasive overall than messages with an implicit conclusion. The evidence was seen in the LSD post hoc tests but not the more conservative Scheffe post hoc tests. However, since the evidence was generated from using

only one short essay as the stimulus, and the results were consistent with each other, we still deem this finding interesting. Messages with explicit conclusions may appear more confident and therefore heuristically more persuasive. At the same time, conclusion explicitness reduces assimilation effects and/or contrast effects, generating little confusion among the audience (O'Keefe, 2016). By contrast, open-ended messages with implicit conclusions may make both supporters and opponents of the concept of the WEF nexus believe that the message argues for their point of view. Confusion is therefrom produced. The recommendation from that finding is that science communications—at least, communications promoting the WEF nexus—will be better served by including an explicit conclusion.

Message inoculation is not found to make a difference in persuasion effects. Providing criticism of the concept of the WEF nexus and then refuting it does not persuade the audience any more than just arguing for the WEF nexus approach. Researchers have maintained that providing both sides of the story may enhance the credibility of the message in the minds of the audience (Armstrong, 2010; Eisend, 2006) and that refuting a weakened opposing side may enhance the persuasiveness of the supporting side of the message (Dillard, 2010; McGuire, 1964; O'Keefe, 2016; Szabo & Pfau, 2002). That argument is not supported in this study. The failure to find inoculation effects in this study may be due to the lack of a preexisting favorable attitude toward the WEF nexus, a new topic of megacrisis, or a perception of threat against it among the subjects. Some scholars hold the preexisting favorable attitude or the perception of threats to be the ideal situation for inoculation effects to occur (McGuire, 1964; Niederdeppe et al., 2014). It may also be because the inoculation treatment is not strong enough or because a typical posttest-only method, in lieu of the three-wave method widely used in inoculation studies (first, measuring preexisting attitudes; second, applying inoculation to the experimental group; and third, delivering a subsequent attacking message), was used to measure the inoculation results (Niederdeppe et al., 2014). We are aware, of course, that no difference in communication effects found between the one-sided groups and the refutational two-sided groups in this study means that we fail to support the argument for inoculation messages to be more effective

than their one-sided counterparts. We cannot, however, simply conclude that no difference exists between inoculation messages and one-sided messages. Further studies on the inoculation effects on new scientific topics need to be accumulated.

It is also worth noting that being exposed to any type of message generates more knowledge on the WEF nexus in the audience's mind. This is the only finding that can be confirmed with the conservative Scheffe post hoc tests. The post hoc analyses also reveal that knowledge is positively correlated with attitude, $r(474) = .22, p < .001$, and general behavioral intention toward reducing water, energy, and food consumption, $r(462) = .14, p < .01$, but not behavioral intention toward promoting WEF nexus. Attitude, however, is substantially positively correlated with both behavioral intention toward the WEF nexus, $r(465) = .66, p < .001$, and general behavioral intention toward reducing water, energy, and food consumption, $r(451) = .47, p < .001$. That provides some evidence for the deficit model, which holds that providing information on scientific topics to the public increases the public's scientific knowledge and therefrom changes its attitude toward science (Sturgis & Allum, 2004). It is true that groups exposed to a version of the message generate higher levels of supportive attitudes, except the open-ended one-sided group, which generates a lower attitude ($\text{Difference}_{\text{open-ended one-sided} - \text{no message}} = -1.31, p < .05$) than the no-message group. But if knowledge on the WEF nexus of all groups exposed to a version of the message increases, knowledge is positively correlated with attitude, and attitude is positively correlated with behavioral intention, it is reasonable to expect that when the informational stimuli turn stronger than just a short essay, public attitude and behavioral intention toward the WEF nexus may increase accordingly.

Conclusion

In summary, this study confirms that messages with explicit conclusions are more effective in promoting knowledge and attitudes toward the WEF nexus as well as the general behavioral intention toward reducing water, energy, and food consumption, whereas sidedness (inoculation) has no persuasive effects. Providing more information about the WEF

nexus no doubt increases public knowledge on the nexus approach. When knowledge increases, the public attitude toward the nexus approach may turn more supportive, and the public may have higher levels of intention to do something in support of the nexus approach. The results, although valuable, may be limited in the experimental context with one essay as stimulus. More studies on how message sidedness (inoculation) and conclusion explicitness impact persuasion effects and how persuasion effects travel along the cognitive, affective, and conative levels in the hierarchy of effects should be conducted.

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Note

1. <http://water-energy-food.org/>

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An IDEA Model Analysis of Instructional Risk Communication in the Time of Ebola

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ABSTRACT

The Ebola outbreak and its rapid spread throughout West Africa and other countries was a megacrisis that imposed numerous challenges to those communicating to nonscientific publics about the epidemic. This article examines the instructional risk messages offered in the days that followed the 2014 infection and death of Liberian national Thomas Eric Duncan in Dallas, Texas. More specifically, we apply the IDEA model for effective instructional risk and crisis communication embellished by exemplification theory to conduct a thematic analysis of messages offered locally (Dallas news stories and press releases), nationally (Centers for Disease Control and Prevention Live Chat Twitter posts), and internationally (website content from the World Health Organization, the United Nations Children's Fund, and Doctors Without Borders). Our conclusions reveal that the majority of messages offered from each organization privileged the element of explanation over internalization and action as well as negative over positive exemplification. On the basis of these conclusions, and informed by previous research, we propose a number of potential implications and recommendations for offering a balanced representation among internalization, explanation, and action as proposed in the IDEA model. We also suggest that positive exemplification could be used strategically to motivate receivers to attend to these messages (internalization), reduce potential misunderstandings (explanation), and take appropriate self-protective actions (action). Agency spokespersons and media reporters may find the conclusions and recommendations drawn from this analysis to be useful when crafting similar instructional risk preparedness and crisis response messages.

KEYWORDS: IDEA model; exemplification theory; Ebola; megacrisis; instructional risk and crisis communication

Instructing nonscientific publics to take appropriate self-protective actions during risk and crisis events is an ongoing challenge for crisis communicators (e.g., Coombs, 2009; Rowan, Botan, Kreps, Samoilenko, & Farnsworth, 2009). This is due, in part, to the imminent threat

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imposed, the potential consequences of wrong actions or inaction, the need to translate scientific information accurately and intelligibly to disparate nonscientific publics, and the short response time afforded for delivering such instructions (e.g., Seeger, 2006; D. D. Sellnow & Sellnow, 2014b; T. L. Sellnow & Seeger, 2013). More specifically, some of the major challenges communicators face when instructing nonscientific publics during a risk or crisis event focus on (in)accessibility of some people and groups to receive the messages delivered via certain channels, lack of motivation among some people and groups to attend to them, misinformation in and misinterpretation of messages, distrust of the message source, and a lack of clarity about what actions to take for self-protection. Consequently, instructional risk and crisis communication is emerging as an insightful body of research for measuring the affective, cognitive, and behavioral learning outcome effectiveness of such messages (e.g., Frisby, Sellnow, Lane, Veil, & Sellnow, 2013; Frisby, Veil, & Sellnow, 2014; D. D. Sellnow, Lane, Sellnow, & Littlefield, 2017; D. D. Sellnow, Limperos et al., 2015; D. D. Sellnow & Sellnow, *in press*).

The rise of megacrises in recent years has increased both the sense of urgency felt during risk and crisis events and the complexity of communicating instructions successfully during them (Helsloot, Boin, Jacobs, & Comfort, 2012). Megacrises “defy boundaries, limits, neat demarcations, patterned connections and linear consequences” (p. 5). Moreover, because megacrises do not respect preconceived boundaries or national borders, they often have an extensive global impact. Consequently, timely and effective responses are even more critical, as well as more difficult to achieve. Some of the most compelling examples include health epidemics and pandemics such as AIDS, BSE, SARS, and H1N1. A case of the Ebola virus disease appeared in a small village in Guinea in December 2013 but was not identified as Ebola until March 2014. In the months that followed, the world would experience a megacrisis epidemic as the disease spread quickly throughout the region and to several other countries (World Health Organization, 2015). Although travel warnings and bans were put into place in an attempt to contain the spread of the virus, the gestation period can range from several weeks to months (Centers for Disease Control and Prevention, 2015). Thus travelers could (and did) easily spread the disease unknowingly.

Containing the transmission of Ebola and communicating accurate and effective instructional messages for self-protection became serious challenges.

When Liberian native Thomas Eric Duncan traveled from Liberia to Dallas, Texas, in September 2014 and then died from the Ebola disease one month later, the megacrisis became a real perceived threat in the minds of the American people. Hysteria ruled as nonscientific publics wrestled with uncertainty about the disease. News media offered wall-to-wall coverage of the virus, politicians and pundits weighed in urging travel bans of all persons arriving from Africa (not just the affected regions), parents withdrew their children from schools, and people living in the same apartment complex as Duncan were scared for their own health and safety.

The apartment of the first nurse to contract Ebola from Duncan, Nina Pham, was quarantined. Neighbors were alarmed, and some even moved away. Another nurse who treated Duncan, Amber Vinson, studied nursing at Kent State University (KSU) in Ohio. When Vinson contracted Ebola, officials at KSU banned both her mother and two other family members who worked at the university from campus for 21 days because of their contact with Ms. Vinson. The airline that Ms. Vinson flew on to and from Ohio forced employees who had been in contact with her to take paid leave. Other passengers were worried about potentially contracting the disease from Ms. Vinson, although she had received permission from the Centers for Disease Control and Prevention (CDC) to travel prior to doing so.

Communication experts agree that much of the hysteria was exacerbated by the conflicting and contradictory messages the public got from the media, Texas Health Presbyterian Hospital officials, and the CDC. This article examines instructional risk messages communicated to nonscientific publics during the 2014 Ebola crisis as a means to improve such messages when megacrisis epidemics arise in the future. We begin by describing the Duncan case, as it illustrates how the Ebola epidemic moved from a crisis event in West Africa to a megacrisis crossing national borders. We then clarify the IDEA model for effective instructional risk and crisis message design grounded in experiential learning theory and embellished with exemplification theory as well

as the methods we employed to answer our research questions. Next, we describe the results of our analysis of (a) messages sent via a CDC live chat on Twitter, (b) news stories and press releases distributed in the Dallas–Fort Worth area, and (c) messages offered on the websites of the World Health Organization (WHO), the United Nations Children’s Fund (UNICEF), and Doctors Without Borders (Médecins Sans Frontières; MSF) during the peak of the crisis in the United States. Finally, we offer a discussion as to how this analysis can inform future decisions about effective instructional risk and crisis messages during megacrisis events, as well as propose suggestions for future research.

The Case

When Liberian national Thomas Eric Duncan sought medical care at Texas Health Presbyterian Hospital in Dallas on September 25, 2014, for a sharp headache, fever, and other symptoms, no one predicted that he would be the first Ebola victim identified in Texas. Duncan allegedly traveled knowingly to the United States after having contracted Ebola in Liberia. A few weeks earlier, Kent Brantly and Nancy Writebol, both medical missionaries who contracted Ebola while working in Liberia, were airlifted to Emory University Hospital in Atlanta, treated with the experimental drug ZMapp, and made full recoveries. Duncan, however, was sent home from the Dallas hospital with antibiotics. Three days later, on September 28, Duncan was rushed to the hospital in an ambulance and placed in isolation.

During this time, Duncan’s apartment was not decontaminated, and family members in the apartment were not quarantined nor told to take any precautionary actions. News media broadcast speculations about the prospect of others contracting the disease. The Richardson Independent School District near Dallas pulled from school three children who had reportedly had contact with Duncan. Many parents worried about the safety of their own children and withdrew them from the Richardson schools as well. Meanwhile, Duncan’s health deteriorated. He died on October 8, 2014.

Two days after Duncan’s death, Nina Pham, a 26-year-old nurse who had treated Duncan at Texas Health Presbyterian Hospital, reported

fever symptoms. She was immediately placed in isolation at the same hospital. Her dog was seized and quarantined. Her frightened neighbors told television reporters that they had no information about what precautions to take. Fortunately, Pham was discharged as healthy on October 24, as documented in photos taken of President Obama hugging her in the Oval Office.

Despite complaining of a fever, another nurse who had treated Duncan, 29-year-old Amber Vinson, was cleared by the CDC to fly from Dallas to Ohio to visit family. After returning to Dallas, Vinson began experiencing Ebola symptoms, was admitted to the hospital, and was placed in isolation. However, some parents believed Vinson may have been in contact with some schoolchildren before she was admitted to the hospital and pressed the schools to shut down. Passengers who flew on the same plane as Vinson to and from Ohio were equally concerned. The inconsistent and contradictory messages coming from the CDC and the Texas Health Presbyterian Hospital, the frightening images of hazmat-clad health and emergency workers that played out in the media, and the politicians and pundits declaring gloom and doom heightened public fears about the virus.

Although the hospital, the city of Dallas, the Dallas news media, and the CDC eventually improved their messaging, the mismanagement of key risk communication during these crucial first few hours and days of the breaking crisis caused considerable anxiety and confusion among members of the public. Thus this project focuses on improving instructional risk and crisis communication messages offered in times of urgent threat (real or perceived) to individuals and groups using this Ebola event as a case study. More specifically, we conducted a thematic analysis of messages disseminated to the public according to the IDEA model of effective instructional risk and crisis communication embellished by exemplification theory as they may influence affective learning (perceived value/utility/relevance), cognitive learning (comprehension/understanding), and behavioral learning (self-efficacy/behavioral actions). The following section provides a rationale for grounding our analysis theoretically in the IDEA model and exemplification theory.

Theoretical Grounding

This study is grounded in the IDEA model for effective instructional risk and crisis messages (D. D. Sellnow & Sellnow, 2014b) and extended with exemplification theory (Zillmann, 1999). The IDEA model is grounded in experiential learning theory as first conceived by John Dewey (1938) and then extended by David Kolb (1984) and colleagues.

The components of the IDEA model are *internalization* (perceived value and relevance via proximity, personal impact, and timeliness), *distribution* (multiple channels—such as TV, radio, social media, smart-phones—through which such messages are/should be delivered), *explanation* (accurate science from credible sources translated intelligibly to nonscientific publics), and *action* (specific steps to take/not to take for self-protection in a given risk or crisis situation; D. D. Sellnow & Sellnow, 2014b). In the case of a health crisis event, effective instructional risk messages would include mention of the potential effects of the disease on people who become infected, how much time one has to notice symptoms and to seek medical help, and where the disease is appearing (internalization). Such messages would also explain what the disease is and how it is contracted in simple, nonscientific language (explanation). Finally, such messages would propose specific actions to take (or not to take) to avoid contracting the disease as well as what to do (or not to do) if one has been exposed to an infected individual or is experiencing any of the symptoms (action). This consistent message ought to be delivered by a variety of credible sources via multiple channels (distribution) to ensure as many people as possible receive it and to reduce the number of inaccurate, misleading, or conflicting messages.

We selected the IDEA model because it has demonstrated its utility across risk and crisis types, among disparate cultural groups, and across international borders (e.g., Frisby et al., 2014; Littlefield et al., 2014; D. D. Sellnow, Iverson, & Sellnow, 2017; D. D. Sellnow, Johansson, Sellnow, and Vigso, 2016; D. D. Sellnow, Limperos et al., 2015; T. L. Sellnow, Sellnow, Lane, & Littlefield, 2012). In essence, the IDEA model provides a framework for designing effective messages when the goal is to instruct nonscientific publics to take appropriate actions for self-protection during risk and crisis events.

Exemplification theory (Zillmann, 1999) is also used in this analysis as it enhances several elements of the IDEA model. Exemplification theory centers on the notion that everyone is familiar with examples and how examples can represent large and complex ideas in comprehensible ways. The key to exemplification is the “recognition of shared features between an example (aka *exemplar*) and the exemplified, as well as between all possible examples of the exemplified” (p. 72). Exemplars are essentially evocative words, phrases, images, and sometimes sounds that serve as cognitive shortcuts to glean meaning about complex ideas or situations (Eagly & Chaiken, 1993; Zillmann, 2002, 2006). In other words, they are easy to understand and process with limited (if any) analytic thought. Exemplification operates in three distinct ways.

First, exemplification theory argues that information is evaluated subjectively, relying on biases in making risk assessments rather than assessing risk systematically (Zillmann & Brosius, 2000). It also supposes that risk perception is altered through exposure to exemplars. Exemplars are made memorable through the use of “visually vivid and emotionally strong” (Aust & Zillmann, 1996, p. 788) words and images. Exemplars can come in the form of “any combination of image and text” (Zillmann, 2006, p. S224) that influences risk perception when viewed frequently and recently.

Second, an exemplar represents a group of similar cases through one instance (e.g., one individual who suffers the effects of fetal alcohol spectrum disorder represents all fetuses that have the potential to be born with similar disadvantages if the mother chooses to drink alcohol while pregnant). Zillmann (2006) argued that exemplification theory functions by means of a “quantification heuristic,” suggesting that frequency of exemplars are continually monitored and the prevalence of a particular exemplar directly impacts its retrieval from one’s memory.

Third, exemplars can have a positive (e.g., “superfood” as healthy foods) or negative (e.g., “Frankenfood” as unhealthy foods) valence. In the case of the Ebola megacrisis, we argue that negative exemplification fueled misperceptions and triggered fear among a variety of publics about its symptoms, how it is spread, how to protect oneself from contracting it, and how to treat it.

Exemplification theory in combination with the IDEA model is

particularly suitable for examining the instructional risk messages sent during the fall 2014 Ebola outbreak that occurred in the United States. By understanding how exemplars were used in the context of the IDEA model, the ways in which exemplars may affect individuals' understanding of a crisis event like Ebola as well as their decisions to follow recommended self-protective actions may become apparent. To clarify, the use of exemplars may help people *internalize* the relevance and potential impact of Ebola on them and their loved ones. Similarly, exemplars might serve as effective cognitive shortcuts to increase understanding of complex information about the virus (*explanation*) and, ultimately, to foster appropriate self-protective *actions* (Spence, Lachlan, Lin, Sellnow-Richmond, & Sellnow, 2015).

On the basis of the implications of the messages sent during the Ebola megacrisis in the United States and the tenets of the IDEA model and exemplification theory, the authors sought to answer the following four research questions (RQs):

RQ1: In what ways do Ebola crisis messages distributed by the CDC during a live chat on Twitter employ elements of the IDEA model for effective instructional risk and crisis communication?

RQ1a: In what ways do Ebola crisis messages distributed by the CDC during a live chat on Twitter employ elements of internalization?

RQ1b: In what ways do Ebola crisis messages distributed by the CDC during a live chat on Twitter employ elements of explanation?

RQ1c: In what ways do Ebola crisis messages distributed by the CDC during a live chat on Twitter employ elements of action?

RQ1d: In what ways is exemplification used in communicating internalization, explanation, and action during the CDC Ebola live chat on Twitter?

RQ2: In what ways do Ebola crisis messages distributed via Dallas area news stories and press releases employ elements of the IDEA model for effective instructional risk and crisis communication?

RQ2a: In what ways do Ebola crisis messages distributed via Dallas area news stories and press releases employ elements of internalization?

RQ2b: In what ways do Ebola crisis messages distributed via Dallas

area news stories and press releases employ elements of explanation?

RQ2c: In what ways do Ebola crisis messages distributed via Dallas area news stories and press releases employ elements of action?

RQ2d: In what ways is exemplification used in communicating internalization, explanation, and action in the Dallas area Ebola news stories and press releases?

RQ3: In what ways do Ebola crisis messages distributed via websites sponsored by the WHO, UNICEF, and MSF employ elements of the IDEA model for effective instructional risk and crisis communication?

RQ3a: In what ways do Ebola crisis messages distributed via websites sponsored by the WHO, UNICEF, and MSF employ elements of internalization?

RQ3b: In what ways do Ebola crisis messages distributed via websites sponsored by the WHO, UNICEF, and MSF employ elements of explanation?

RQ3c: In what ways do Ebola crisis messages distributed via websites sponsored by the WHO, UNICEF, and MSF employ elements of action?

RQ3d: In what ways is exemplification used in communicating internalization, explanation, and action about Ebola on the websites sponsored by the WHO, UNICEF, and MSF?

RQ4: What similarities and differences exist regarding IDEA model components embellished by exemplification in Ebola crisis messages distributed via the CDC live Twitter chat, Dallas news stories and press releases, and websites sponsored by the WHO, UNICEF, and MSF?

Method

The research team conducted a thematic analysis of all messages sent by several key entities during the first hours, days, and weeks of the 2014 Ebola outbreak in the United States. More specifically, all messages sent during a CDC-hosted live question-and-answer Twitter chat on October 2, 2014; all Dallas news stories and press releases published between September 24 and October 31, 2014; and all website content published by the WHO, UNICEF, and MSF during that same period were examined.

Before conducting the analysis, the researchers consulted with Ebola experts at the CDC to collect accurate information about the infection, how it is spread, its symptoms, and the actions people should take for self-protection. To ascertain the kinds of information being shared with general publics, the researchers also collected information from the Texas Health Presbyterian Hospital in Dallas, official documents from the city of Dallas, Dallas newspapers and TV reports, and news releases from universities and schools in the Dallas–Fort Worth area. Doing so ensured ecological validity, accurate scientific information, and a comprehensive understanding of what messages were being conveyed at the time.

Sample

Because research has suggested that different publics perceive different entities as more and less credible (T. L. Sellnow & Seeger, 2013), the research team examined messages from multiple sources: the CDC, Dallas area news media and health agencies, and three international health organizations (WHO, UNICEF, and MSF). Also, on the basis of previous research suggesting that different publics seek information via a variety of media channels (Anthony & Sellnow, 2011, 2016), messages distributed via a variety of channels (Twitter, traditional news media and press releases, and organization websites) were examined. Finally, the research team focused on messages that may be accessed easily online (as well as via other outlets) because the Internet is becoming an increasingly popular source for both relaying news and seeking information (Rosenstiel, Mitchell, Purcell, & Rainie, 2011).

The authors collected all of the tweets exchanged during the CDC question-and-answer Twitter session held on October 2, 2014. To clarify, the CDC hosted a live chat for individuals concerned about contracting the Ebola virus after Duncan was reported to have tested positive. The authors also collected all Dallas area news stories and press releases discussing the virus and this incident from September 24 to October 31, 2014. Finally, all Ebola-related material posted on three international organizations' websites (WHO, UNICEF, and MSF) was collected and used to contextualize the messages about the Ebola virus from the perspective of the global community. In all, this comprehensive census

of data collected from September 24, 2014, through October 31, 2014, yielded 282 tweets, 31 local news stories, and 38 international organization website articles.

Procedure

An etic approach was used to analyze the content of messages distributed from these disparate sources via these diverse channels (Lindlof & Taylor, 2011). To clarify, an etic approach uses established “conceptual categories provided by our disciplinary knowledge and theory” (p. 95). In this case, message content was coded according to the internalization, explanation, and action components described in the IDEA model as well as for the use of positive or negative exemplars within each component. Two researchers developed a codebook, which was then used to examine all message content (see the appendix). Any disagreements were resolved through discussion. The messages were examined for the presence (or lack thereof) of each element as well as the role of exemplification in them. From these results, conclusions and implications were drawn regarding instructional risk messages conveyed in this case as well as for informing similar message content and design in future crisis and megacrisis events.

Results

Research Question 1

To evaluate the use of the IDEA model elements in the CDC’s Twitter live chat, 282 tweets were thematically coded for internalization, explanation, and action as well as the incorporation of exemplification within each of these elements.¹ Of these 282 tweets, 61 (21%) incorporated elements of internalization. For example, Jacin tweeted, “Press conference said asymptomatic people aren’t contagious; Travel guidance on CDC site suggests otherwise. What gives?” The CDC responded, “People aren’t contagious during incubation period; they’re only contagious when they start having symptoms.” Jacin’s fears appeared to be averted: “Then there is no need for United Airlines to be contacting all of those passengers? Simply over-abundance of precaution?” And the CDC confirmed, “Since the patient didn’t develop

symptoms until AFTER travel, there was no risk to other passengers.”

Of these 282 tweets, 250 (88%) focused on elements explanation. For example, in response to Rawlings’s question about how patients are being treated, the CDC responded, “Patients are given supportive care. Some experimental treatments are being tried.” And in response to Apodaca’s query about Ebola surviving on sterile surfaces for 6 days, the CDC responded that it cannot do so unless it is in body fluid, does not survive long outside of the body, and is only contagious if a person is experiencing active symptoms. In numerous other exchanges, CDC experts not only responded but also pointed to websites where participants could get more information and explanation about the virus, how it is spread, and what is being done to contain it.

Of these 282 tweets, 53 (19%) incorporated elements focused on action steps. For example, Em D tweeted, “Does ebola respond to ‘Purell’ and alcohol based sanitizer, or soap and water? How about bleach?” The CDC responded that “alcohol-based hand sanitizer and chlorine can kill Ebola.” Sometimes, however, the action steps were not specific, as was the case when the CDC responded to Galiano’s query about how to properly disinfect and what product to use by saying, “Use an EPA-approved hospital grade disinfectant.” Finally, as was the case with internalization, many times the CDC experts responded to queries about self-protective actions by pointing participants to a website for more information. For example, when Victory Healthcare asked, “What symptoms should someone look out for, in regards to Ebola?” The CDC responded with, “Here are new resources: go.usa.gov/vEwP.”

In terms of exemplification, only 9 (less than 1%) of the 282 tweets used exemplars, and 8 of the 9 instances represented negative rather than positive exemplification. More specifically, only 3 (less than 1%) of the 61 tweets that focused on internalization incorporated exemplars, and all 3 were negative. For example, Robrod4g wrote, “I have a 7 yr. old & a 7 mo. pregnant wife who works in the health care community. YES! I AM SCARED!!” The CDC responded, “Understandable, #Ebola is scary. New threat & deadly disease.” Six (less than 1%) of the 250 tweets focused on explanation-incorporated exemplars. Only one of these was coded as a positive exemplar by using a graphic illustration as a cognitive shortcut regarding how the Ebola virus is contracted



FIGURE 1 Positive explanation exemplar.

(see Figure 1). No exemplars were identified in the tweets that focused on action steps. Ultimately, a majority (88%) of the live chat tweets emphasized explanations of the situation and events, and fewer than 1% offered exemplars.

Research Question 2

In total, 31 news stories and press releases focused on Ebola were published in the Dallas area between September 24 and October 31, 2014. These reports were collected and thematically coded for internalization, explanation, and action as well as the incorporation of exemplification in each of these elements. Of these 31 publications, 10 (32%) incorporated internalization. For example, an initial statement published by the Dallas Independent School District (2014) began with a note of compassion by saying, “The health and safety of our students is always our top priority” and then addressed proximity and personal impact by revealing that the five students who may have had contact with the infected individual had “been advised to stay home from school.”

Similarly, a Texas Christian University (2014) press release reported that “TCU is aware of the confirmation of an Ebola case in Dallas, Texas (proximity). The University is in contact with local health care officials and will continue to monitor the situation and keep families, students, faculty, and staff informed during this time” (compassion, relevance, personal impact, timeliness).

Nearly every article—that is, 30 (97%) of 31—incorporated elements of explanation. A common theme throughout them was a statement refuting a common misunderstanding that Ebola could be spread through the air. These refutations were then typically followed by a statement explaining that Ebola is only spread via “direct contact with the body fluids of a person showing symptoms of the illness” and that the risk of contracting it was very low according to both “national and local health officials” (source credibility; Southern Methodist University, 2014). Another common theme focused on the steps being taken by government agencies, health care providers, and other area experts to manage the outbreak. For example, the Governor’s Press Office (2014) released a statement announcing “the creation of a state-of-the-art Ebola treatment and infectious disease bio containment facility in North Texas” that would “allow us to act quickly to limit the virus’ reach and give patients the care they need.”

Regarding the action element, only 2 (6%) of the 31 articles proposed specific action steps. Instead, many of them simply pointed readers to seek such information from additional websites, such as the Tarrant County Health Department, the Texas Department of State Health Services, or the CDC. The reports that did offer specific action steps tended merely to discourage “travel to the affected African counties,” to monitor people for symptoms, and to “see a physician in a medical setting for an evaluation” when symptoms emerged (Texas Wesleyan University, 2014).

Finally, 7 of the 31 articles (22%) offered negative exemplars, and none used positive exemplars. More specifically, 2 (20%) of the 10 articles that incorporated internalization did so with the use of exemplars. For example, one NBC Dallas–Fort Worth story described Ebola as “a fire straight from the pit of hell” (Young, 2014). Five (16%) of the 30 articles that focused on explanation incorporated exemplars to aid explanation.

For example, WFAA, an ABC Dallas news affiliate, reported that the “once-bustling” Texas Health Presbyterian hospital had turned into a “ghost town,” accompanied by photographs of empty hallways and waiting rooms (Lupkin, 2014). No exemplars were offered as cognitive shortcuts for specific action steps. In sum, as was the case with the CDC Twitter exchange, nearly all of the Dallas area news stories and press releases emphasized explanation over internalization or action and offered only negative exemplification.

Research Question 3

To examine the use of IDEA model elements among international health organizations, all 38 Ebola-related articles posted on WHO, UNICEF, and MSF websites between September 24 and October 31, 2014, were collected and thematically coded for internalization, explanation, action, and exemplification. Of these 38 articles, 12 (31%) incorporated internalization. For example, the MSF website discussed the negative impact of imposing a forced quarantine of asymptomatic health workers returning from West Africa to the United States. That is, there is no reason to quarantine asymptomatic people because asymptomatic people with the Ebola infection do not transmit the virus. The organization also emphasized the lack of risk the U.S. population faced when health care workers returned from fighting the epidemic in West Africa. In a press release following Dr. Craig Spencer’s discharge from the hospital after contracting Ebola while working with MSF, for instance, the organization reiterated that asymptomatic people like Dr. Spencer cannot spread the virus and that “the public must not stigmatize and even threaten these volunteers” (Doctors Without Borders, 2014b).

A majority of the articles—36 (95%) of 38—focused on explanation. For example, the MSF website posted this explanation about what was being done to contain the disease and treat infected patients:

MSF will work in collaboration with organizations, academics, companies, the Ministries of Health in the affected countries, and the WHO in order to implement fast-tracked clinical trials for some of the new treatments for Ebola at existing treatment sites. Experimental treatments are currently being selected and trial designs are being developed to

ensure that disruption to patient care is minimal, that medical and research ethics are respected, and that sound scientific data is produced. (Doctors Without Borders, 2014b)

These kinds of explanations about what Ebola is, how it is contracted, and what is being done to contain it and treat patients were posted on each of the websites sponsored by the WHO, UNICEF, and MSF.

Of the 38 website articles, 25 (66%) proposed specific action steps. An article posted on the WHO website (World Health Organization, 2014), for instance, explained that

WHO and its partners have recommended exit screening at airports and land-border crossings in countries affected by Ebola, and it is now an established practice. WHO stresses that only two categories of people should not travel: those who are infected and those identified as their close contacts as they may be infected with Ebola virus.

According to an article posted on the UNICEF website (Gilliam, 2014), “avoiding shaking hands is possibly the easiest of the [behavioral] changes” to make.

In terms of exemplification, 6 (16%) of the 38 website postings used exemplars. More specifically, 4 (33%) of the 12 articles that integrated internalization also used exemplars. For example, an MSF article described its “sickest patients” to be treated for Ebola and the “miracle” of their recovery. The MSF wrote, “When Hassan was brought in, he was almost dead. He wasn’t moving or speaking; he had constant diarrhea; he was confused, disoriented, and lethargic” (Doctors Without Borders, 2014a). One of the 36 articles offering explanations did so using exemplars. This article was actually an infographic by UNICEF explaining what life-saving supplies had been delivered to Ebola-affected countries between August and November 2014 (United Nations Children’s Fund [UNICEF], 2014). Finally, one exemplar was also identified as helping to convey self-protective action steps to be taken. UNICEF (2016) emphasized the important role of handwashing in preventing the spread of Ebola using the WASH acronym, which stands for “water, sanitation, and hygiene.”

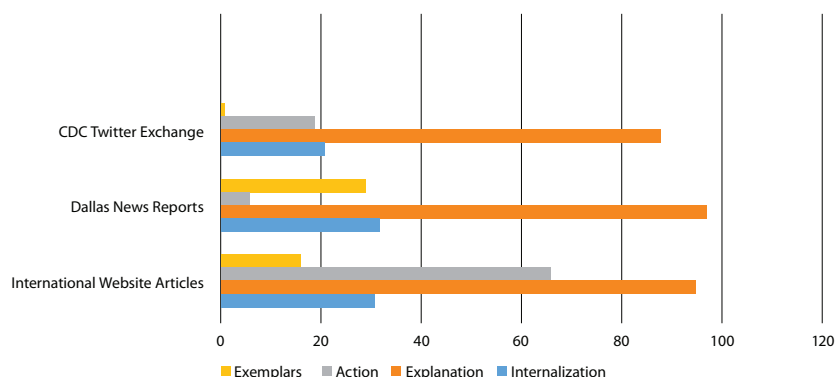


FIGURE 2 Comparative analysis of CDC Twitter exchange, Dallas area reports, and international organization websites.

In sum, a majority of international articles emphasized explanation over internalization or action, although more of these messages did offer action steps compared to the local newspaper reports or national CDC Twitter exchange. In addition, as was the case with the Twitter chat and Dallas area news stories, very few exemplars were offered, and of those that were, most were negative.

Research Question 4

Descriptive statistics from each of the distribution channels—local news stories and press releases; national CDC live Twitter chat; and international (WHO, UNICEF, MSF) website articles—were compared to discover similarities and differences regarding the use of IDEA model elements and exemplification in the Ebola crisis messages. Regarding the IDEA model elements, Figure 2 illustrates that 21 % of the CDC Twitter feed, 32% of Dallas newspapers, and 31% of international organization newspaper reports incorporated internalization. The vast majority of messages across distribution channels focused primarily on explanation (88% of the national CDC Twitter messages, 97% of the local Dallas news articles, and 95% of international organization website articles). With regard to the action element of the IDEA model, only 19% of the national CDC exchange tweets and 6% of the local Dallas area news reports offered specific actionable instructions. However, 66% of the international organization website articles proposed them. Finally,

regarding exemplification, although exemplars can serve as cognitive shortcuts for translating complex subjects, fewer than 1% of the CDC Twitter messages, 29% of the Dallas news stories and press releases, and 16% of the international organization website articles used them. Moreover, those that did use exemplars tended to use negative rather than positive ones.

Discussion

This examination of messages distributed nationally via the CDC Twitter live chat, locally via Dallas area news stories and press releases, and internationally via website postings from the WHO, UNICEF, and MSF when the first case of and death from Ebola occurred in the United States yields some fruitful conclusions. Moreover, the conclusions give rise to some interesting implications and recommendations.

Perhaps the most formidable conclusion to be drawn from this analysis stems from the fact that messages shared by all sources via a variety of distribution channels focused extensively on explanation over internalization and action. Although multiple message-testing studies have confirmed that the most effective instructional risk and crisis messages integrate all three elements, this study reveals that current risk and crisis reporting practices continue to privilege explanation over internalization and action (e.g., D. D. Sellnow, Lane et al., 2015; D. D. Sellnow et al., in press; T. L. Sellnow, Sellnow, & Helsel, 2017). This privileging of explanation is not surprising, however, in that it confirms the results of previous research, for example, by Frisby et al. (2014), who focused on news reports during the 2010 nationwide egg recall in the United States, and by D. D. Sellnow et al. (2016) regarding blended meat contamination in Sweden. However, if the goal of such instructional risk and crisis messages is learning, then it follows that they ought to contain elements that research has confirmed are necessary to achieve affective and behavioral, as well as cognitive, learning (e.g., Dewey, 1938; D. D. Sellnow & Sellnow, 2014b). In fact, failing to do so could lead people to do nothing or to do precisely the wrong thing, which could result in devastating consequences (D. D. Sellnow et al., 2017).

With regard to the Ebola outbreak megacrisis as experienced in the United States, failing to integrate internalization and action into most of the messages could have played a role in the level of fear felt by nonscientific publics seeking information about the crisis and how to protect themselves. To clarify, instructional risk messages that offer explanation without internalization often fail to achieve compliance, and even when specific action steps are offered, they are typically ignored or not sustained when internalization is not also integrated (D. D. Sellnow et al., 2017).

In the midst of a public health megacrisis like the 2014 Ebola epidemic, organizations ought to provide accurate information to diverse publics about what the disease is and how it is spread. All sources examined in this study (CDC Twitter exchange, Dallas area news stories and press releases, and international organization websites) did so. However, only the international organization website articles also offered specific self-protective action steps in a majority of them. It is certainly possible that, because the Ebola outbreak had been going on for some time in West Africa before it reached the United States, these organizations were more concerned with revealing actions needed to contain the spread of the virus than with providing general base-rate information about the virus. In other words, because the virus was spreading quickly in West Africa, emphasizing specific action steps may have been a more immediate concern. It is unfortunate that the CDC and Dallas new stories and press releases did not capitalize on sharing the abundance of information available from these international sources long before Ebola surfaced in the United States. Perhaps they considered it a “West African disease” and believed it would be contained there before having a chance to migrate overseas. Thus preparing U.S. publics to take preventative action may have appeared to be somewhat irrelevant prior to the Dallas case. This seems plausible, given that CDC experts reiterated many times that such an outbreak was highly unlikely in the United States owing to the access to advanced medical treatment centers. Regardless, previous research has suggested that messages including specific action steps tend to be most effective when preparing for a potential crisis as well as in response to crises (Frisby et al., 2014; T. L. Sellnow et al., 2017; D. D. Sellnow & Sellnow, 2014b).

With regard to exemplification, research has demonstrated that it can be a valuable cognitive shortcut for making complex information easier to process and retain (Spence et al., 2015). However, this analysis reveals that, overall, very few of the messages integrated exemplars. This is somewhat surprising, given that exemplars are commonly used in mass media generally (Aust & Zillmann, 1996) and to achieve persuasive goals specifically (Brosius & Bathelt, 1994). Moreover, negative exemplars were being shared throughout social media during this same time period. Not only that, but most of the exemplars that appeared in the Dallas area news stories were negative. The failure to offer positive exemplars in the messages shared by the CDC, Dallas news stories, and international organization websites as a counter to them appears to be an unfortunate oversight. Research has reported that positive exemplars can be effective in countering negative ones, reducing fear, and fostering self-efficacy, but only if they are actually offered and received by target populations (D. D. Sellnow & Sellnow, 2014a; Spence et al., 2015; Spence, Sellnow-Richmond, Sellnow, & Lachlan, 2016).

Findings from this study also suggest important recommendations both for crisis communicators and for future research. First, none of the three sets of messages examined offered a balanced integration of all three message content elements (internalization, explanation, and action) according to the IDEA model. Given conclusions drawn from existing research, failure to include all three may have contributed to a lack of motivation among receivers to attend to them as well as misunderstandings about the epidemic, its relevance, and what to do for self-protection. When communicating to nonscientific publics about risk and crisis epidemics, spokespersons reporting locally, nationally, and internationally may be wise to take strategic measures to incorporate each of these elements into their messages. Moreover, the various spokespersons ought to coordinate their efforts to ensure that message content and distribution efforts are consistent. To clarify, because people seek convergence among such messages during megacrisis events, doing so may help ensure that diverse publics (a) accurately understand what the disease is and how it is spread and (b) engage in appropriate actions for self-protection (Anthony & Sellnow, 2011, 2016; T. L. Sellnow & Seeger, 2013).

Second, exemplification was rarely present in these instructional risk messages distributed locally, nationally, or internationally. When used strategically, exemplars can make complex information easier to understand and remember (Zillmann, 2006; Zillmann & Brosius, 2000). They can also be used to counter misleading negative exemplars, which often go viral on social media (D. D. Sellnow & Sellnow, 2014a; Spence et al., 2016). Incorporating positive exemplars may effectively reduce fear and heighten self-efficacy among disparate nonscientific publics receiving the messages. In the future, it may behoove crisis communicators to thoughtfully consider the strategic use of exemplification to bolster internalization by motivating receivers to attend, explanation by making complex information easier to comprehend and retain, and action by serving as a cognitive shortcut for instigating appropriate self-protective actions.

Finally, the results of this study point to the utility of doing additional research applying the IDEA model embellished with exemplification. Additional thematic and content analyses on existing crisis messages across distribution channels and crisis types could add to what we know about current practices. Surveys, interviews, and focus group studies could enhance our understanding of the effectiveness of instructional risk and crisis messages among various stakeholder groups. Similarly, additional message-testing experiments could inform our understanding of the effectiveness of such messages in achieving affective, cognitive, and behavioral learning outcomes among diverse people and groups in various countries and regions, regarding a variety of risk and crisis types, and distributed via a range of channels. Finally, although IDEA model messages have been tested empirically, confirming their utility in a variety of crisis situations, similar experiments ought to be conducted on messages designed specifically for Ebola to confirm the validity of potential recommendations offered to health organizations and media professionals charged with communicating about the disease. Such experiments could confirm the degree to which IDEA model messages instruct nonscientific publics specifically about Ebola (i.e., what it is, how it is spread, and what to do for self-protection) more effectively than status quo ones like those examined here.

Limitations

We acknowledge several limitations of this study. First, we were able to collect more tweets than Dallas area news stories and press releases or website content provided by international health organizations. However, a more balanced sample of messages across sources and channels was not possible because more messages simply did not exist during the time frame of this case study. That said, we did examine a comprehensive census, which included everything available from those outlets during the time period. Moreover, if we take word count into consideration, the tweets were quite short and the news stories, press releases, and website articles considerably longer. Bearing this in mind indicates less imbalance among the sources than might be perceived by number alone. Second, the Ebola outbreak had been going on for many months in West Africa before it emerged in the United States. As such, the nature of the story lines was bound to be different in the local stories compared to the international articles, which may have complicated the results of the study. Finally, our decision to conduct a thematic analysis was based on the lack of work done across distribution channels (local, national, international) to date. Thus these exploratory results ought to be considered, as they may spur future research using different methodological approaches.

Conclusion

Indeed, effective risk and crisis communication when targeting non-scientific publics presents formidable challenges. When attempting not only to inform the public about an event but also to instruct them to take appropriate self-protective actions, the challenges become even more complicated. Moreover, when the event is a megacrisis that crosses international boundaries and impacts diverse publics, communicators must be strategic about the content to include in their messages and the channels through which they distribute them. The IDEA model for effective instructional risk and crisis communication embellished with exemplification may provide a workable framework for doing so. This Ebola epidemic analysis revealed, however, that current risk and crisis message practices continue to privilege explanation over internalization

or action. Consistent messages coming from various health organizations and media outlets that integrate internalization, explanation, and action embellished with appropriate exemplars may achieve successful affective, cognitive, and behavioral learning outcomes among disparate nonscientific publics. As such, we may increase the likelihood that these messages will achieve what we intend from them—which is, of course, to save lives.

Appendix: IDEA Model Thematic Analysis Codebook

Internalization

Goal: To get attention and to aid retention.

Question: Am I (or those I care about) affected, and how?

- a. Compassion (People don't care how much you know, until they know how much you care.)
 - Does the message say something to this effect (e.g., empathetic messages about supportive care being given to infected patients, as well as to their loved ones)?
- b. Personal relevance
 - *How likely* am I (or those I care about) to be affected?
 - What and how severe might the consequences be?
- c. Proximity
 - Where is the event occurring, and how close is that to me and/or those I care about?
 - Is location specified, and to what specificity?
- d. Timeliness
 - When is the event occurring?
 - How much time do I have to prepare?
 - How much time do I have to respond if exposed?
 - How much time do I have to respond if infected?
- e. Exemplification
 - What if any positive exemplars are offered to get attention and make it memorable?
 - What if any negative exemplars are offered to get attention and make it memorable?

Distribution

Goal: To get the correct message to the target audience(s).

Question: What channel or channels is/are the message(s) being sent through?

- Convergence of multiple messages being sent through diverse channels.

Explanation

Goal: Provide accurate information about what is happening and being done about the event.

Question: What is happening, and why?

- a. Source credibility (international, national, local)
- b. Accurate science, accurate information
- c. What are the responsible agencies doing to deal with the event?
- d. Intelligible translation for target audience?
- e. Is exemplification used to help make complex information easier to understand, and if so, is it positive and helpful or negative in ways that foster misunderstanding?

Action

Goal: To empower people to take appropriate action to save lives.

Question: What should I (and those I care about) do (or *not* do) for self-protection?

- a. Specific *preparation* action steps
- b. Specific *response* steps
- c. Exemplification in action steps?

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Note

1. For the live Ebola #CDCchat, see <https://storify.com/CDCgov/live-ebola-cdcchat-october-2-2014#publicize>

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